

PHILADELPHIA MEDICAL TIMES.

PHILADELPHIA, JULY 26, 1884.

ORIGINAL LECTURES.

CLINICAL LECTURE ON "SUMMER COMPLAINT" OF CHILDREN.

BY JOHN M. KEATING, M.D.,

Visiting Obstetrician to the Philadelphia Hospital.

Reported by W. A. EDWARDS, M.D.

IT is usually the case that with the advancing summer there is observed a very large increase in the mortality of children. According to the statistics of the late Dr. Farr, out of one million births about one hundred and fifty thousand will die at the end of the first year, fifty-three thousand at the end of the second, and twenty-eight thousand at the end of the third. We also find that in large cities the death-rate is larger than in country districts. This, to a certain extent, may go to prove that the excess of mortality is preventable; and, indeed, the individual experience of each practising physician certainly is that the majority of cases which succumb to infantile diseases are accompanied by great carelessness both in the management of the child previous to its illness and in its treatment during the attack. How often are we called to see a child almost, if not quite, *in articulo mortis*, which a few simple remedies administered for a few days at the beginning of the attack would probably have saved from serious illness and probably from death!

The season of the year which we are now approaching carries with it, as we all know, influences which are depressing,—depressing in the sense of the word as constituting a predisposing cause to diseases of an adynamic type.

We find at this time that diseases of the respiratory tract are comparatively rare, whereas, in children especially, the digestive tract seems to be made more vulnerable. Why this should be the case is not difficult of solution: at this time the digestive apparatus is that most taxed, and it is that most abused. Not only do we find it weakened by the depressing influence of city air, with its noxious vapors and myriads of germs, its functions disturbed, its secretions diminished, but we find it overtaxed

with food which is indigestible and often absolutely irritating.

We have *two* forms of disease of this character to study, the first dependent upon a distinct poisonous principle, possibly a germ, engendered or enlivened by foul air, sewage, and dampness; it comes on precipitately, sometimes with a suddenness which is almost appalling, and resembles in many of its symptoms Asiatic cholera: this may be called true *cholera infantum*.

Let me describe such a case. The child is seen to be restless, limp, and somewhat paler than usual; shortly after taking food it will vomit,—if milk, uncoagulated. In a very short time the bowels will become affected; there will be thin, greenish stools,—often containing small curds of undigested milk. The stools rapidly increase in frequency, become colorless, and resemble in many respects the rice-water stools of cholera. The child at this time suffers considerable drawing, cramping pains in the muscles of the extremities; great thirst, parched lips, restlessness, emaciation to a degree which is astonishing, the eyes sinking deep in their sockets and leaving a dark ring which is characteristic. If the fontanelle is not closed, it becomes depressed and sunken; the skin becomes clammy, and the body exhales an odor which is almost diagnostic.

The temperature of the body falls rapidly in these cases, the pulse grows weaker and weaker, the cry diminishes until it is scarcely audible. If the child survive long enough, thrush (*oidium albicans*) appears on the mucous surfaces, the urine is diminished or almost suppressed, languor increases, the bowels run continuously, and the child dies of inanition.

Such cases speak for themselves. They point to some poisonous influence which is introduced from outside. They occur independently of hot weather, but are usually very much more frequent during prolonged periods of elevated temperature, when night and day temperatures show scarcely any difference. They are especially found in large cities, usually among the poor who inhabit localities where filth accumulates and who live in damp cellars and are the most ill fed and poorly clothed portion of our population. Stagnant ground-water is supposed to be one of the principal agents in the

production of this disease, and especially when it is combined with excessively high and prolonged atmospheric temperature and other debilitating influences. An article by Dr. F. Woodbury, in the *Medical and Surgical Reporter*,* some years ago, insists upon the existence of a specific morbid cause in cholera infantum, in contradistinction to ordinary summer diarrhoea due to general causes, and is well worthy perusal. This disease is also seen in the houses of the wealthy, where every luxury seems to invite good health and where the surroundings seem to be those least calculated to depress, and yet we have here one of the most productive causes of the disease,—the entrance into the sleeping- and living-apartments of the foulest gases, brought hither by the so-called modern improvements, continually poisoning the air through want of chemical disinfection, free ventilation, and common sense.

Nor is the teething age alone to blame. Such attacks occur in children independently of any irritation of this sort. As far as we can tell, these cases of *cholera infantum* are by no means common; the cutting of teeth, however, renders the child especially susceptible. This should be borne in mind in all cases; for free incision of the gums that are swollen or present the least suspicious appearance will never do harm, and may save life. It is also in these cases that some good may be expected from the administration of the bromide of potassium. Some years ago, when this disease occurred almost in epidemic form in this city, I tested the stools—the thin, serous stools—of children affected, and found them invariably highly alkaline.

Now, how shall we treat such cases? It is obvious that the first indication for treatment is to check the drain which is exhausting the patient,—check the flow of serum which is continuously flowing into the intestinal canal; to stimulate the nervous system and permit it to regain the control which the irritating poison seems to have deprived it of; to supply food of such a character and in such quantity that it will be absorbed.

We have to stimulate the circulation, to increase the warmth of the surface, and remove the child as soon as possible from the depressing influence or the absolute poison which was the cause of the attack.

The course that I usually follow is to

place the child in a warm-water-and-mustard bath, or apply mustard or aromatic poultices to the abdomen, with warmth and friction to the surface, either with some stimulating lotion or flannels wrung out of warm water; the bathing is by far the best. Give the child, in small quantities frequently repeated, a little gum-arabic water, or toast water, cold, containing brandy. In administering brandy, say for a child one year old, it is well to order a teaspoonful of brandy to a tablespoonful of toast water, and give of this a teaspoonful every half-hour until you notice a decided effect.

The most satisfactory medicinal treatment in these cases is decidedly the acid one, giving a mixture of morphia and aromatic sulphuric acid, as follows:

R Morphinæ sulph., gr. ss;
Acid. sulph. aromat., gtt. xxxii;
Elixir Curaçoe, f3iv;
Mucil. acaciæ et aquæ, āā, q. s. ad f3iv. M.

Sig.—For a child aged one year, a teaspoonful every hour.

Creasote may be given in an emulsion, gr. $\frac{1}{8}$ every hour.

You may, if you desire, substitute for the creasote any of the following drugs: salicylic acid, salicylate of soda or bismuth, gr. $\frac{1}{2}$ every hour; carbolic acid, benzoate of soda, gr. $\frac{1}{2}$ every hour. Resorcin, gr. $\frac{1}{8}$, has been recently much lauded in this condition.

If the vomiting be a very constant and severe symptom in the beginning, you may give small doses of calomel with sugar of milk; especially is this the case if the child has a coated tongue, using the brandy as mentioned to keep up the nourishment.

If the diarrhoea be the most prominent symptom and the passages show an accumulation of curds, it is well to give a teaspoonful of castor oil before using the astringent mixture, in order to remove all irritation from the bowels.

Many recommend, when the diarrhoea is severe and very frequent, the use of acetate of lead, beginning in small doses, gr. $\frac{1}{4}$ every hour, or nitrate of silver in doses of one-fifteenth to one-twentieth grain, in emulsion.

The mustard application, consisting of a poultice of half mustard and flour placed over the abdomen, is, in my opinion, a very important matter in the treatment of this disease.

As regards food, it is necessary to proceed with great caution. This form of disease is more apt, of course, to attack hand-fed children, though babies which are nursed exclusively are not entirely exempt. Where the child is wet-nursed, it would be far better for you to regulate its diet in such a way that it will receive a small quantity of milk at frequent intervals.

In these cases, when the milk is vomited unaltered and passes through the bowel in the same condition as taken, it is absolutely useless—in fact, harmful—to feed it in this way. The child may now be fed from the spoon with a small quantity of milk which has been drawn from the breast. Should the child be hand-fed, it can be given either wine-whey, peptonized milk, or cow's milk diluted to one-half or one-quarter with lime-water. Should the latter (cow's milk) be administered, it will require the greatest care to see that it is in good condition before the child receives it; for the very conditions which surround the child and predispose it to this most dreaded disease are the very ones that act on the milk to make it not only totally unfit for food, but absolutely poisonous.

When there is the least doubt about the purity of the milk from its source of supply, I would very much prefer carrying a child through such an attack on broths, beef juice, albumen water, toast water, with condensed milk, using brandy or port wine, well diluted, to keep up the child's strength.

When such cases recover, their progress is slow if they are kept in their accustomed surroundings. You should be as earnest in your directions for change of air as you are for the regulation of the diet and medicinal treatment, which consists in preparations of cinchona, minute and repeated doses of strychnia, and iron, if the stomach will tolerate it. The wine of pepsin, notwithstanding my authorities do not advise it, is invaluable in many cases.

There are few people so poor that they cannot take a child, under such circumstances, out to the suburbs and spend the day in the fresh air.

When possible, the child should be kept constantly on the water. Even crossing and re-crossing in the ferry-boats of large cities has been followed by great improvement.

Should such patients belong to the well-to-do classes, you should at once send them

to the sea-shore. Not only will the change from a warmer to a cooler atmosphere be beneficial, but there seems to be something almost specific in the pure air that blows off the sea; whether it is from its purity or from the chlorides which it contains, it certainly is wonderful in its action; but when a child has once gone to the sea-shore it should remain until all evidence of the attack has passed away, and until it is able to withstand depressing influences and digest its normal quantity of milk.

The other form, to which I referred at the beginning of my remarks, may be termed *entero-colitis*, though it may be so mild as to affect only the mucous membrane of the stomach and the upper part of the small intestine; on the other hand, it may extend throughout the entire tract, involving the colon. It will thus be seen that it may assume a variety of phases, presenting itself either as a simple catarrh on the one hand, or as an inflammation presenting croupous characteristics. The term *catarrh* may be applied to the milder type; but severer ones are known as *entero-colitis*. This division includes almost all forms of diarrhoea in children, except possibly the dysenteric.

We shall limit ourselves to the severer form, *entero-colitis*, in the present description. It is usually due to irritation,—irritation of the intestinal tract by mechanical means, in most cases by indigestible or undigested food. Again, it may be due to an extension of a stomatitis accompanying teething, which, by continuity of structure, affects the mucous membrane of the oesophagus, stomach, and intestines in its descent; thus, starting as a mere nothing, the flame may be fanned to an uncontrollable conflagration by outside influences.

Cold is another exciting cause. Especially is this the case in that variety of which we are now speaking, where the debilitated child is exposed to the high temperature of midsummer and allowed to be suddenly chilled at night,—notably the case with us during August and September.

We have also an exciting cause in the character of the child's diet. To follow out this subject would, however, lead us to the important consideration of infant-feeding, for which we have not at present the time. I can refer you, however, to lectures of mine published in the *Medical Times* for February 25, 1882, and to the *Archives of Pediatrics* for February 15, 1884.

My experience teaches me to believe

that the action of heat and cold in the production of the disease may not be simply the local action on the cutaneous capillaries and their contents, but that we also have some action on the nervous system, especially that presiding over nutrition and glandular secretion, which prevents the thorough elimination of morbid effete matters and the absorption of materials which in a state of health would not be a cause of irritation. In all these cases we have a coated tongue in proportion to the severity of the complaint; usually light stools, and scanty, high-colored urine.

Nature herself, if let alone and the child properly fed and supplied with plenty of water, would probably, in many cases, overcome the difficulty; but when coal is heaped on without the ashes being removed it is simply a question of time when overloading takes place, and it will be a matter of surprise only to those who are ignorant or careless to see the outbreak of the disease.

As this disease has no definite cause, except such as may exist in all this variety of cases, its symptoms are vague and irregular. The mild form may present slight fever, restlessness, quickened pulse, and prostration. Diarrhoea may not be noted at all in the beginning; in many there is constipation. Especially is this the case if the catarrh begins high up.

Mucus, being secreted in large quantities, naturally will appear in the stools. Owing to the improper secretion of the digestive juices, food may pass through little changed, and, as excretion is also limited, the passages may be deprived of color, or they may be greenish, as the result of altered bile or blood-pigment. The odor of the passages, as a rule, is extremely offensive, due to decomposition of materials in the intestinal tract.

Pain is dependent on the amount of inflammation: there may simply be tenderness, or it may amount to griping pains,—colic. There may be tenesmus, if the inflammation extends to the rectum; and children that are old enough complain of pain in the region of the umbilicus.

The child is very fretful. The skin of the abdomen is hot and dry, though the extremities may be cool. There is great liability to prostration in such cases, especially if the attack is sudden, if the degree of inflammation seems extensive, and if diarrhoea appears early and is severe.

Vomiting is not a symptom of the disease unless there is associated with it a gastritis.

In testing the stools of children with summer complaint, or enterocolitis, with litmus, I have found the reaction usually acid, at times very markedly so, and I am satisfied that this forms an indication for treatment. You have not the collapse in this disease that you have in cholera infantum at the onset, but death may occur from inanition. This form occurs at all ages, at all times of the year, but especially, as I have before stated, in midsummer, and in the debilitated children in large cities and those who are hand-fed on improper food.

Should you be called to a case of this kind, where the child has vomited its milk uncoagulated, where there is fever, restlessness, refusal of food, and evidence of abdominal pain, examining the tongue, noting it far back, you will find it coated with a yellowish-brownish fur, the breath is offensive, the abdomen tympanitic, and the child has a history of constipation or the passage of curds or mucus,—as a rule, in this stage, in small amounts.

Your first indication is to relieve the engorged bowel, to carry off the irritating matters therein contained, to re-establish those functions upon which excretion depends, and during this time to feed the child upon the blandest of food, to keep up peripheral circulation, and to allay the irritability of the nervous system. Now, personally, I know nothing that will have so good an effect in these cases as small and frequently-repeated doses of calomel and bicarbonate of soda:

R Hydrarg. chlor. mit., gr. i;

Sodii bicarb., gr. xii;

Gum. acaciæ, gr. vi.

M. et div. in chart. no. vi.

Sig.—One every hour until six are taken.

Meanwhile, the child is to have nothing but a little cracked ice to allay fever and quench thirst.

If you so desire, "gray powder" may be substituted for the calomel, in doses of one-fourth to one-half grain. Some object to calomel and prefer the phosphate of sodium. Routh, in his book on "Infant Feeding," especially recommends it, as do also Dr. W. Stephenson* and Dr. S. G. Webber.† I myself always give calomel, and find it very reliable. Should the child be seen early

* Edinburgh Medical Journal, vol. xiii. p. 336.

† Boston Medical and Surgical Journal, vol. i. p. 5.

in the attack and the stools show much accumulated undigested material, the child being sufficiently strong previous to the attack, I would give after the last calomel powder a teaspoonful of castor oil, either alone with peppermint-water, or a teaspoonful of castor oil and half a teaspoonful of aromatic syrup of rhubarb, the object being to discharge freely all mucous accumulations from the bowel and to relieve the capillary engorgement; but if, after you have administered the calomel, you fear that the child is too weak to stand the additional laxative, the bowels being very loose and watery and the depression seeming to increase, you may give subnitrate or subcarbonate of bismuth, with or without small doses of Dover's powder, or you may use chalk-mixture with great caution, bearing in mind that the sudden checking of a diarrhoea which is caused by an irritant still retained is apt to do a great deal of harm. An excellent prescription, recommended by Dr. Allchin, is as follows:

R Liq. bismuth., ℥i-iii;
Spts. ammon. aromat., ℥ii-v;
Tinct. cardam. comp., ℥ii-v;
Aqua, fʒi-ii. M.

Sig.—According to age.

The use of counter-irritation, of course, must not be forgotten. Keep the patient in a moderate temperature, neither too warm nor too cold, and supply the child freely with water.

As regards stimulants, you must be very cautious; but debility requires stimulation if there is much diarrhoea or weakness. Brandy, of course, is preferable to any other form; I would advise California brandy, but you must bear in mind that it must be given freely diluted. Port wine is useful in subacute cases. When it is necessary for you to incorporate your stimulant with nourishment, the use of sherry and water or sherry and albumen water or wine-whey may be preferred. I would advise you not to give milk until the secretions are well acting: feed the child on peptonized gruel, beef jelly, toast water, mutton broth, or chicken tea.

Change of air is specially useful in cases of this character. Where there is much debility, great caution is required in the selection of a place to take the child. People seem to have a belief that it is impossible to catch cold at the sea-shore, and frequently children are exposed to a sudden reduction of temperature without any

precaution whatever when they are just at the turning-point of a severe attack of catarrhal enterocolitis: such children are not benefited by sea-air.

Should you feel the necessity of ordering your patient away from home, you should caution the mother against exposing the delicate child to the sudden influences of cold, of dampness, and of chilly winds, and instruct her to keep the infant well wrapped, sheltered, and protected from the night air by requiring the sleeping-room to be heated sufficiently to dry the dampness.

In regard to the tonic medicinal treatment of these cases, it is scarcely necessary for me to detain you. Probably the most valuable agent is arsenic, from one-half to one drop of Fowler's solution in water three times a day. Pepsin or extract of pancreas is necessary to improve digestion. You will often be obliged to give small doses of rhubarb or aromatic preparations of senna, probably with nuxvomica or belladonna, to establish the normal peristaltic action of the intestines, which have become enfeebled by the inflammatory processes.

ORIGINAL COMMUNICATIONS.

REPORT ON OPHTHALMOLOGY.

BY ALBERT G. HEYL, M.D.,

Ophthalmic Surgeon to the Episcopal Hospital, Philadelphia.

BLINDNESS AFTER FACIAL ERYSIPELAS.

THE following cases are transcribed not so much to call attention to a rare complication of erysipelas as for the bearing which they have upon the pathology of the general disease.

Case I.—[Reported by H. Knapp.] Patient was a man, æt. 40, attacked on March 20, 1883, with erysipelas of the face. It commenced at the nose, involved the naso-pharyngeal mucous membrane, and extended over the forehead, both ears, and both sides of neck. Five days after the inception, morning temperature and pulse had become normal, but the eyes were noted as injected; conjunctivæ chemotic; R. E. displaced downward and forward; patient complained of defective sight in this eye; the exophthalmus increased on each side; incision into the tissue of each orbit was made, followed by the escape only of blood. Nine days after the incep-

tion the case was examined by Knapp. The ophthalmoscopic appearances of each eye were: a milky-white color of the posterior part of the fundus, gradually fading into a reddish white towards the equator; optic disk and macula not recognizable; a great many dark, almost black, blood-vessels, radiating from a common centre, very tortuous, thin, tapering as they approached the disk; the larger ones had twice, in some places thrice, the calibre of the largest normal retinal veins; a great number of hemorrhages were scattered over the fundus; in the neighborhood of the disk they were spindle-shaped, towards the periphery round. Two days later the condition was altered: swelling of lids and conjunctivæ reduced; fundus less white; at the periphery the usual red coloration had returned; the same black, tortuous vessels existed, but, in addition, a number of light-red, straight, evidently arterial vessels were seen; they had from one- to two-thirds the normal calibre; disappeared when the eyeball was pressed on, but could not be made to pulsate visibly; a number of new hemorrhages noted. The changes which were further noted up to three months from the inception of the disease may thus be condensed: gradual disappearance of the milky-white appearance of the fundus, excepting about the macula; chalky-white optic disks; gradual change of the blood-vessels, so that they appeared like a series of white lines on the fundus. This last process was characterized by the disappearance of portions of the blood-columns, so that the vessels, both arteries and veins, showed colored portions of the blood-streams interrupted by white or yellowish-white spaces; in some the arrangement was such as to produce a bead-like appearance. Knapp's theory is that of compression of the central vessels in the orbit through the cellulitis, leading to the formation of thrombi, the white lines traversing the fundus being simply occluded vessels.—*Archives of Ophthalmology*, vol. xiii. page 83.

Case II.—August Carl communicates the following. Patient, æt. 36, was attacked with facial erysipelas, which began on the end of the nose; four days after, the whole nose and the lids of the left eye were greatly swollen; temperature 38.1° C.; urine normal; right cheek and eyelids became involved; abscesses formed in the nose and in the neighborhood of each eye.

Sixteen days after the attack, complete amaurosis of R. E. was noted; also an enlargement of the supra-orbital and frontal vessels, which appeared in the form of a solid cord on the forehead; there was evident protrusion of the R. E., great œdema of the lower fornix, and diminished movement of the ball; the erysipelas spread to the right temporal and parietal region, where several abscesses formed; on the subsidence of the disease, the hair fell out in these regions. The enlargement of the vessels in the right frontal region slowly disappeared, and was not to be seen two and a half months after the commencement of the attack. At this time there was still slight protrusion of the ball, which was dislocated towards the temporal side. There was pronounced œdema of the lower fornix; no sense of fluctuation; cornea clear; pupil of medium dilatation, immovable under incident light; L. E., V = $\frac{5}{8}$. Ophthalmoscopic examination:—R. E., papilla sharply defined, not swollen, and without evidence of atrophy. It was, along with the adjoining retina, clouded, of a light milky hue. Many of the retinal vessels were not visible, or were with difficulty recognized; some seemed to be simply white threads, others were partially filled with blood. Two principal venous trunks, somewhat tortuous and filled with blood, were observed in the upper half of the retina; one of these was accompanied by its artery of about normal calibre. In the course of months the papilla became evidently atrophic, the above-mentioned artery had almost entirely disappeared, the two main upper veins were slightly diminished in calibre, and the vessels which had exhibited interrupted blood-columns were completely empty. In addition, a vitreous growth, which probably had previously escaped observation, was noted.

The etiology of atrophy of the optic nerve after erysipelas is then discussed, and the author expresses the opinion that a circulatory disturbance of the nature of that observed in his case would satisfactorily explain the phenomena which are observed in these cases. The nature of this circulatory disturbance is then referred to: mechanical pressure upon the vessels is insufficient. The existence of micrococci in erysipelatos skin has been proved. Robert Koch has found them in the connective-tissue spaces and in the lymph-

vessels, the latter being sometimes completely occluded. Koch, in opposition to other authors, emphasizes the absence of the cocci in the blood-vessels themselves. It is not difficult to apply this to cases where the orbital tissue becomes involved. If the orbital tissue be invaded, then the disease may progress along the connective tissue in which the vasa centralia are embedded, and reach the perivascular spaces in the retina. The vessels thus become affected, perhaps disease of the vessel-walls, thrombosis, embolism in certain branches, perhaps closure of certain vessels by the cocci in the perivascular spaces, followed.—*Klinische Monatsblätter*, April, 1884. [The practical importance of observations like these will be evident when the similarity of the vascular apparatus in the eye and in the brain is understood. We may look upon the eye as a process of brain-structure, from the inspection of which important lessons may be drawn as to pathological processes occurring in portions of the brain hidden from view. We have in the above cases illustration of a pathological process occurring in the retina, a tissue supplied by a terminal artery, and there seems to be no good reason to doubt that essentially the same phenomena occur in those portions of the brain-structure which have the same kind of vascular supply. The two cases above described are essentially the same. To Knapp belongs the credit of publishing the initiatory as well as the later retinal changes from accurate observation. Carl has accurately pictured simply the later stage of the process. The practical point in these cases is to find the true explanation of these phenomena. Knapp thinks that through the orbital cellulitis pressure was exerted on the central artery of the retina, circulatory disturbance occurred, with consequent thrombosis, etc. The reviewer thinks this will not stand close examination. Carl starts with a more correct pathological idea,—viz., that erysipelas is essentially a lymphangitis. The reviewer called attention four years ago to the probability that the eye-affections of erysipelas were brought about through the lymphatics.* The vulnerable point both in Knapp's and in Carl's explanation is the attempt to explain these phenomena on purely mechanical principles. Without

attempting a complete exposition, the reviewer wishes to put the following on record as his solution of these phenomena. A diseased condition of the lymphatics is the starting-point. Beyond question the movement of the blood and also that of the lymph are intimately associated with the processes of nutrition. While it seems to be true that mere blocking up of the lymph-channels, as by ligature, produces very little disturbance in the arterial system, it is different with the abnormal processes which occur in the lymphatics in erysipelas. Here an injection of the capillaries corresponding to the invaded district occurs; hence the peculiar abrupt margin of erysipelatous redness in the skin, best explained by the hypothesis of dilated arterioles consequent upon the lymphangitis. Essentially the same thing occurs in the retina, but here we have to do with a terminal artery (*end-arterie*). The retinal arterioles dilate, the blood is driven with a rush into the veins, and the phenomena above described are produced. The artery does not fill again, because the conditions for normal propulsion of the blood are wanting, and the current simply passes by the orifice of the central artery. If anastomoses with other vessels (as in the skin) existed, the result would be different. This explanation is based on the established fact that the blood-vessels are living organs capable of responding to excitation, etc., upon a theory which the reviewer holds as to the physiology of blood-propulsion in the retina,† and also upon the supposition that the capillary area in the retina exceeds in capacity the arteria centralis. If the vaso-constrictors of the retinal arterioles fail to act, the arterial system of the retina will be emptied of its blood as surely as a colander of the water poured into it.—H.]

GALVANO-CAUTERY IN CONJUNCTIVAL AFFECTIONS.

Fröhlich, of Berlin, has had satisfactory results from this agent in the treatment of trachoma and follicular catarrh. There is very little reaction from its use. The granulations are not destroyed in one sitting, but in several, the destruction being accomplished by a pointed cautery attached to an ordinary zinc-carbon element.—*Klinische Monatsblätter*, January, 1884.

* Metastatic Tenonitis in Diphtheria, by Albert G. Heyl, M.D., American Journal Medical Sciences, April, 1880.

† Vide Transactions of the American Ophthalmological Society, 1883, p. 530.

A NEW POWDER-APPLICATOR.

Magnus, of Breslau, describes a new instrument, invented by Kabierske, for the application of medicinal powders to diseased surfaces. It consists of a rubber balloon connected at a right angle with a glass flask which holds the powder. Air is driven into the flask on compressing the balloon, which drives the powder out of another opening into the exit-tube. Magnus has used this with great satisfaction in his clinic.—*Klinische Monatsblätter*, May, 1884.

A NEW INSTRUMENT FOR TATTOOING THE CORNEA.

Parisotti has added a modification to a tattooing instrument, consisting of a canal which holds the coloring-material and ends with an india-rubber bulb. Pressure on the bulb will regulate the flow of the ink.—*Centralblatt für Augenheilk.*, May, 1884.

MEDICATED BOUGIES IN THE TREATMENT OF DISEASES OF THE LACHRYMAL SAC, ETC.

Hotz, of Chicago, makes use of gelatin bougies medicated with various substances. The sizes correspond to Bowman's probes Nos. 2-6. Several hours are required for the solution of the probe.—*Centralblatt*, May, 1884. [The reviewer has made use of such probes made by C. L. Mitchell, M.D., & Co., and thinks them a very useful remedy. These probes of Mitchell & Co. are very much more rapidly dissolved than those used by Hotz, about twenty minutes sufficing for the solution of one corresponding to Bowman's No. 3. This is an advantage if the intention is simply to apply medication to a chronically inflamed tissue. The same principle, the reviewer thinks, applies both in this case and in diseased conditions of the conjunctiva,—viz., that the application will be more effective if used in forms not very quickly absorbed; e.g., in the form of salves in conjunctival diseases, or of a dissolvable gelatin probe in lachrymal-sac affections. If the design is to dilate a stricture of the duct, then the harder probes, as used by Hotz, would seem preferable.—H.]

HEMORRHAGE AFTER CATARACT-EXTRACTION.

Fieuzal reports the following case. An old man was successfully operated on as regards the right eye and discharged cured. The extraction was performed afterwards

on the left eye. Immediately after the expulsion of the lens a violent intraocular hemorrhage occurred; loss of the eye followed, finally necessitating enucleation. Urine was normal, also the intraocular pressure. There was slight atheroma of the arteries. In the discussion on this case, Dianoux said that he had seen the same thing occur three hours after the operation. Abadie would, in case the first eye were lost through this complication, endeavor to prevent its occurrence, in operating on the second, by compressing the carotid and by hypodermics of ergotin. Fieuzal remarked that we could not always know that this would occur, as his own case showed.—*Centralblatt f. Augenheilk.*, May, 1884. [The above was called forth by the case reported by Warlomont (see Ophthalmological Report, *Medical Times*, April 5, 1884.). It calls attention to a complication doubtless rare, but worth taking into consideration. The suggestion made by the reviewer in the comment on Warlomont's case as to the hemorrhage being due to the diseased condition of the vessel-coats seems to be confirmed by Fieuzal's case. A plain inference from this is the importance of examining into the condition of the vessels before the operation. If vessel-degeneration be the cause of the hemorrhage, we shall perhaps not treat it advantageously after the plan recommended above by Abadie. A better way, the reviewer thinks, is to avoid the iridectomy in the extraction, as recommended in the comment on Warlomont's case (see *Medical Times*, April 5, 1884.). The iridectomy undoubtedly exercises an important influence upon the intraocular circulation, and it seems to be a fair conclusion that when vessel-degeneration exists it is liable to be followed by intraocular hemorrhage. It would be worth a trial to apply the Heurteloup leech to the temple the moment the tendency to intraocular hemorrhage makes its appearance, as the intraocular circulation can be perceptibly influenced in this way.—H.]

INTRAOCULAR HEMORRHAGE FROM DISTURBED MENSTRUAL FLOW.

Dor reports a case of hemorrhage into the vitreous in a case of amenorrhœa. In the discussion on this case, Coursserant related the details of a case in which the cessation of the menstrual flow was caused by violent mental excitement. The hemorrhage into the vitreous recurred with the return of each period. Parisotti referred

to an observation of Rampoldi relating to the appearance of blood-corpuscles in the corneal tissue at each menstrual period.—*Centralblatt f. Augenheilk.*, May, 1884.

RETROBULBAR CAVERNOMA.

Von Brincken reports the following. Patient was 2½ years old. A huge exophthalmus of the right eye existed, said by the parent to have developed in eight days. Extirpation of the tumor without enucleation was attempted. Conjunctiva was opened between superior and exterior recti. A bluish fluctuating mass became visible, from which several spoonfuls of venous blood escaped after having been punctured. The eyeball then retreated to the normal position. On the following day the ball again became prominent. The same procedure was again adopted, the tumor being freely incised. Secondary hemorrhage followed this operation, and the eyeball and tumor were removed by operation without considerable loss of blood. Microscopic examination by Prof. Neelsen showed the tumor to be an "angioma cavernosum venosum." Most of the orbital angiomas described in the literature of the subject have been connected with the arterial system.—*Klinische Monatsblätter*, April, 1884.

THE TREATMENT OF ULCUS CORNEÆ SERPENS.

Meyhöfer, of Görlitz, reports his experience in one hundred and twenty-six cases of ulcer serpens. He divides his methods of treatment into three stages. First stage, that in which the treatment was purely medical; e.g., application of moist heat, atropine, aqua chlori, weak solutions of carbolic acid. Result very unfavorable. Second stage, that in which the treatment was almost purely operative. The operation was essentially the Saemisch, except that the cut was made either at the demarcation-line dividing the sound tissue from the ulcer, or in the sound tissue not directly through the floor of the ulcer. The result was very satisfactory. This experience led him to think that the cut should not be too small; that the repeated opening of the wound with a probe was unnecessary; that anterior synechia seldom followed the operation. He attributes the last to making the cut in sound tissue; the rapid healing of the cut, the restoration of the anterior chamber, preventing the synechial attachment. The third method of

treatment was that of iodoform in connection with scraping the floor of the ulcer. The idea is that iodoform is not antiseptic but aseptic in its operation; that is to say, that iodoform placed upon an abraded corneal surface not already infected with micro-organisms will prevent the infection, but applied to an already infected surface it will not produce any very special effect. Hence the suggestion in suppurating and infiltrated ulcers to scrape away the diseased surface until sound tissue is reached, upon which the iodoform may be employed. Iodoform applied to the ulcer serpens seemed to exert little or no influence. In thirty-nine cases treated on the iodoform and scraping process, twenty-nine were successfully treated, eight required the Saemisch cut and were also cured, two cases were lost through corneal suppuration in spite of the incision, etc. The scraping process was accomplished by a small spoon made for the purpose. In the superficial ulcers the operation is easily performed; in the deep ones not so easily, but still the removal of the diseased tissue from edges of the ulcer, even in these cases, exerted a favorable effect.

A NEW THERAPEUTIC MEASURE IN CERTAIN FORMS OF CORNEAL ULCER.

Professor Kuhnt, of Jena, describes a new method of treatment adapted for torpid corneal ulcers situated close to the limbus. The clinical features of the form of ulcer referred to are (a) tendency to increase in depth until anterior chamber is opened; (b) the floor of the ulcer of a gray tinge, sometimes covered in spots with yellowish deposits; (c) the edges of the ulcer not undermined; (d) paracentesis corneæ is followed by rapid healing. The paracentesis is very apt to be followed by anterior synechia, and, accordingly, Kuhnt has tried the following operation. The ulcer is first freed from the diseased surface-material by a needle, and then touched with a solution of corrosive sublimate; a flap of conjunctiva is then raised from the scleral surface (somewhat of the shape of the flap in Teale's operation for symblepharon) and laid upon the corneal ulcer; slight pressure on the flap seems to be sufficient to fix it in its place; the flap is not entirely detached from the sclera, but, through its broad pedicle, draws its nourishment from the scleral conjunctiva; the eye is simply bandaged. Pain ceases about

an hour after operation, and at the end of three days the flap is observed to be very much injected and firmly attached. Bandage replaced and allowed to remain five days, when the case may be looked upon as well. The above represents the course in the first case; two other cases were operated on, with a similar result.—(Extract from Kuhnt's monograph.)

SOME NEW OBSERVATIONS IN RETROBULBAR NEURITIS.

Hock, of Vienna, thinks that there are certain forms of retrobulbar neuritis in which the disease starts from the nerve-sheath and involves secondarily the optic nerve-trunk. This affection, which may or may not be accompanied by visible changes in the fundus, and in which the vision is variously affected, is especially characterized by pain about the orbit, pain upon movement of the ball, and also upon pressure from before backward. He adds another symptom, based on observation,—viz., that the location of the inflamed spot in the sheath may be determined from the direction of the ocular movement which produces the most pain, or which alone of all movements is followed by pain: thus, if the movement upward is alone of the possible ocular movements followed by pain, then the inflammatory focus is in the inferior part of the sheath, because it is stretched in this movement. In this case the upper part of the visual field corresponding to the lower half of the fundus would be defective. Hock bases this upon a number of clinical observations. (*Centralblatt für Augenheilk.*, April, 1884.) [This may be so; at all events, it is worth bearing in mind in clinical work. It does not seem to the reviewer that the cases given by Hock in his paper conclusively establish the point.—H.]

A STUDY OF THE NUTRITIVE VALUE OF BRANNY FOODS.

BY N. A. RANDOLPH, M.D.,

Lecturer on Physiology, University of Pennsylvania,
AND

A. E. ROUSSEL, M.D.,

Late Resident Physician at the Philadelphia Hospital.

Read before the College of Physicians of Philadelphia.

FROM an economic stand-point the question of the nutritive value of bran is one of great importance, for the

removal of this portion of the wheat implies a loss of from 17 to 20 per cent. in the weight of the grain. In spite of this loss, which necessarily renders white bread more expensive than that made from whole wheat flour, even the poorest inhabitants of most civilized countries where bread is not the staple food insist upon eating the bread made from the finer grades of flour. A tendency so wide-spread as this would apparently indicate the unconscious summation of the experiences of many generations, and go far towards proving the propriety of such a selection.

The use of flour representing the entire wheat grain has, however, been long and ably advocated; the reasons given for the retention of bran being that its removal entails the loss of—

I. "Nutritive salts" (Nährsalze of Liebig).

II. Carbohydrates.

III. Proteids, notably gluten.

The facts also that branny foods in common with many others will spur an atonic bowel to activity, give due bulk to its contents, and induce the passage of stools of the normal or feculent consistency are noteworthy; but their further consideration is beyond the limits of the present paper. The other reasons for the retention of bran in wheat flour will be discussed *seriatim*.

I. The fact that fine flour contains a much smaller percentage of salts than does either bran or the whole wheat—a fact evidenced by the relatively small amount of ash which it yields—forms the basis of the theory of Liebig,* that in the removal of bran nutritive salts of value are lost. The investigations of Meyer† and Forster‡ are often cited as showing that after the removal of bran these salts are still present in quantity sufficient for the needs of the economy.

Our experiments upon young pigs, described farther on, show that, although survival is quite possible upon an exclusive diet of bread from white flour, growth is much more active upon a diet of bread containing a greater amount of inorganic matter. It is possible that Liebig's estimate of the needful amount of inorganic matters was too high, but it is equally noteworthy that there is a tendency on

* *Chemische Briefe*, 1851.

† *Zeitschrift f. Biologie*, vol. vii. p. 33.

‡ *Ibid.*, vol. ix. pp. 293-380.

the part of late writers to give insufficient prominence to the importance of these elements of food. It may not be out of place here to mention a striking illustration of the absolute necessity for inorganic salts in the fluids of the economy, as recorded by Dr. S. Ringer.* This observer found that while minnows were kept in ordinary tap-water they would live for weeks unfed. When, however, they were placed in distilled water they died, on an average, in four hours and a half. Further, in a rude imitation of spring-water, made by the addition to distilled water of potassium and calcium chlorides and of sodium bicarbonate, the fish lived on an average about two weeks. Study of the factors in the experiments showed that death was due to a diminution of salts in the economy of the fish. That such diminution, even when very slight, could result fatally, was shown by an analysis of the distilled water after the death of the fish, traces only of inorganic matter being found.

II. The loss of carbohydrates involved in the removal of bran appears at first sight not inconsiderable, as it amounts to about 20 per cent. of the carbohydrates present in the entire grain. The members of this group represented in bran are starch and cellulose. The former is present in extremely small amount, while the latter, as has been proved by the experiments of Donders,† Mulder,‡ and Poggiale,§ is digestible in any noteworthy degree|| by the herbivora only. The observer last named subjected a given weight of dry bran to the successive actual digestions of two dogs and one hen, and thereafter was able to recover over 65 per cent. of its non-nitrogenous constituents. The loss in cellulose was probably much less than that here indicated, for we have found that during the maceration of bran in the digestive tract certain portions become detached from the main flake and are with the greatest difficulty recovered.

III. Wheat bran contains a considerable but varying proportion of nitrogenous compounds, averaging, however, about 14

per cent.¶ This fact has permitted the continued existence of two widely-credited assumptions: (a) that this nitrogen exists in albuminoid combination, or, in other words, is in a nutritious form; and (b) that the proteid matter of wheat is contained almost exclusively in specific cortical cells of the grain,—the so-called “gluten cells.”

(a.) Nearly all the existing estimates of the proportion of proteids in food-stuffs are based upon the hypothesis that all of the contained nitrogen is present in some albuminoid combination. The percentage of nitrogen in a given food is therefore ascertained, multiplied usually by either 6.5 (Payen) or 6.33 (Ritthausen), and the result recorded as the percentage of proteid matter. It has lately been conclusively proved that nitrogen in non-albuminoid combination, *i.e.*, in compounds not capable of affording nourishment to any higher organisms, is present in many food-stuffs, and especially in those of vegetable origin. As a case in point may be mentioned the analyses of Wigner,** in which it is shown that, of the total nitrogenous matter of the entire wheat-grain, 87.9 per cent. is coagulable,—*i.e.*, distinctively proteid. Of the bran, only 42.4 per cent. of its nitrogenous compounds are coagulable, whereas in the flour 89.7 per cent. of these bodies come under the head of true proteids. Yet more marked instances of the inaccuracies attending the ordinary methods of estimating proteids have become evident in the course of researches by Schulze and Barbieri,†† who find that of the entire nitrogen of the potato but 56.2 per cent. enters into the composition of albuminoid matter, while in the fodder beet only 20 per cent. of its contained nitrogen is thus combined, the remaining 80 per cent. aiding in the formation of amides, nitrates, and ammonia. It is evident from these facts that estimates of the nutritive value of branny and other foods, based upon the percentage of nitrogen present, must be received with caution.

(b.) The term “gluten cell” is, through

* Journal of Physiology, vol. iv. No. vi., February, 1884, in the appended Proc. Physiol. Soc., session December 13, 1883.

† Nederl. Lancet, vol. vi. pp. 227, 244.

‡ Physiologische Chemie, p. 1024.

§ Comptes-Rendus, vol. xxxvii. p. 173.

|| See, also, Weiske (Centralblatt, No. 26, 1870), who finds that a small percentage of cellulose, especially when cooked, is dissolved in the human digestive tract.

¶ Dempwolf, Ann. d. Chem. u. Pharm., vol. cxi. p. 343. His figures, of interest here, are as follows. The amount of nitrogenous matter in the whole wheat was 14.35 per cent. The amount varied in the different grades of white flour from 11.01 to 15.56 per cent. The nitrogenous matter of the two grades of bran made from this wheat was respectively 13.93 and 14.06 per cent.

** Der öster. ungar. Müller, 1879, p. 52.

†† Quoted by Voit, Hermann's Handb. d. Physiol., vol. vi. p. 462.

a wide-spread misapprehension, applied to the cells constituting the fourth layer (Parkes) of the wheat-grain. These cellular elements exist usually in a single stratum as irregularly cuboidal bodies, in each of which, surrounded by a dense and laminated cellulose wall, are seen the semi-opaque granular contents. Upon the addition of reagents, especially in the form of caustic alkaline solutions, there is almost constantly noticeable a differentiation of the contents strongly suggesting the presence of a nucleus. Under these conditions, also, a coalescence of many of the individual granules forming the contents occurs with the formation of several highly-refractive spheroidal bodies, an appearance which has led Payen (as quoted by Dr. Richardson) to use the name *oléifères* as a synonyme for the cellular constituents of the fourth coat. The hypothesis that the cells of this layer are the chief gluten-bearers of the wheat-grain is usually attributed to Donders.* The return of bran to flour was at about the same period also advocated by Millon and Mège-Mouriès.†

From this time on, with but few dissenting voices, the "gluten cell" has been generally spoken of as the index of the nutritive nitrogenous matter‡ of the wheat-grain, while the central portion included within this layer, and constituting fully 80 per cent. of the grain, has been popularly regarded as being made up almost exclusively of cellulose and starch, and attempts have even been made to estimate the nutritive value of certain cereal food-stuffs by a microscopical determina-

tion of the proportion of "gluten cells" present.§

The manifest impropriety of such methods has of late been strongly emphasized by Prof. Richardson, of this city, and Prof. Leeds, of Hoboken. The credit of the first disproof of the exclusive limitation of gluten to the cells of the fourth layer is probably due to Schenk,|| who treated sections of wheat-grain with Millon's reagent, a pink coloration of the endosperm resulting. This coloration was most vivid at the periphery, indicating a gradual condensation of the proteid constituents of the grain as the cortex was approached. The same writer found "no coloration of the 'gluten cells' as a result of this reagent,"—an observation which we cannot confirm; for, apart from the readily demonstrable slight coloration of the contents of "gluten cells" after the application of Millon's reagent, it is more than difficult to conceive a cell, however specialized, which shall exhibit no proteid matter as a portion of its contents. Schenk also noted in artificial gastric digestions of sections of wheat that the starch-granules which (to a greater extent) fill the cells of the central portion of the grain, became detached, and from this fact deduced the just proposition that the starch-granules lay embedded in some albuminoid substance. In a study of the distribution of gluten within the wheat-grain,¶ the senior writer has described several methods for the ocular demonstration of gluten, in very considerable amount, in that portion of the grain included within the fourth layer, and entirely independent of the "gluten cells." The methods were as follows:

If whole wheat-grains be macerated in water to which a few drops of ether have been added to prevent germination, they will in a few days become thoroughly softened, and the contents of each grain may then be squeezed out as a white tenacious mass.

Examination of the remaining bran shows the "gluten cells" undisturbed, closely adhering to the cortical protective layers.

By now carefully washing the white extruded mass, the major part of the starch may be removed; and, upon the addition

* Nederl, Lancet, iv. 739; vi. 227, 244. Third Series, vol. i. 377.

† Comptes-Rendus, vol. xlv. p. 47.

‡ By general consent, the albuminoids of the wheat-grain are grouped together as gluten, which is, however, further separable into gluten-fibrin, gluten-casein, gliadin, and mucedin, proteid bodies practically equal in nutritive value, but differing in certain physical properties, notably that of solubility. It must therefore be borne in mind that in all methods of separating gluten from the other constituents of the grain, its (relatively small) soluble portion is removed with the starch, and that any estimate of the quantity of gluten based upon such methods will probably be below rather than above the actual amount. Ritthausen ("Die Eiweiss-Körper der Getreidearten," 1872) believes that a certain amount of true albumen should be included with the constituents of gluten just mentioned. An observation of Denis ("Mémoire sur le Sang," 1859), confirmed by Hoppe-Seyler (Med. Chem. Unt., 1867) and Weyl (Ber. d. Deut. Chem. Ges., xlii. 10, 1880), demonstrates that a portion of the proteids of the cereals exists in the form of a globulin. Thus the observer last named has shown that in wheat flour treated with a 15-per cent. solution of sodium chloride, no formation of gluten occurs. We have found that bran, when macerated in 15-per cent. salt-solution, yields a considerable amount of proteid matter precipitable by nitric and picric acids. We incline to believe, however, that this is not a true albumen. (See Vines, Journal of Physiology, vol. iii. p. 91.)

§ E. Cutter, M.D., Gaillard's Med. Journ., January, 1882. Anat.-physiol. Untersuch., p. 32, Wien, 1872.

¶ Randolph, Proc. Acad. Nat. Sci. Phila., December 11, 1883, p. 308.

of a drop of iodine solution, microscopic examination shows numerous net-works of fine yellow fibrils, still holding entangled in their meshes many starch-granules, colored blue by the iodine.

In carefully washed specimens, the sponge-like net-works are seen to retain the outline of the central starch-filled cells, and evidently constitute the protoplasmic matrix in which the starch-granules lay. Upon gently teasing such a specimen under a moderate amplification, the fibrils will be seen to become longer and thinner, in a manner possible only to viscid and tenacious substances,—a class represented in wheat by gluten alone.

An eminently satisfactory proof of the proteid nature of these central net-works may be obtained by heating the specimen in the solution of acid nitrate of mercury (Millon's reagent), when the fibrils will assume the bright pink tint characteristic of albuminoids under this treatment. The results of the application of the xanthoproteic and biuret reactions are equally conclusive, but more care is required in the use of these proteid tests, and the resultant differentiation is not so clear. Reticuli, similar to those above described, but much broken and consequently far smaller, may be seen, upon close examination, scattered throughout fine white flour, without the use of any reagent.

In even the thinnest sections of the wheat-grain, the gluten of the central portion is always masked by large numbers of starch-granules. These may to a large extent be removed by immersing the section for a short time in liquor potassæ, with subsequent careful washing. The alkali affects the hydration and partial solution of the starch; but if its application be too long continued, the gluten will also be dissolved. This treatment is well adapted to show the rather dense gluten net-works usually found adherent to bran immediately below the fourth layer.

The most satisfactory method of studying the distribution of gluten in sections of wheat is that of artificial salivary digestion. If the section be gently boiled for a moment to hydrate the starch, then transferred when cool to filtered saliva, and maintained for from half an hour to an hour at a temperature of about 98° F., all the starch will be dissolved, while the insoluble proteid and other constituents will remain *in situ* and entirely unaltered. The

same result may be obtained from a somewhat more prolonged digestion of the unboiled section. The section of wheat-grain thus treated will exhibit throughout its entire central portion close-meshed gluten net-works, which become slightly denser towards the cortex of the grain. The proteid character of these reticuli is here, as in the first method, susceptible of micro-chemical demonstration. Upon the application of Millon's reagent to such a section, a relatively very faint coloration, indicating the presence of albuminoids, is noticeable in the "gluten-cells," while the gradual condensation of the gluten of the endosperm, as the fourth layer is approached, is evident even to the unaided eye.

The fact that the gluten net-works become denser towards the periphery of the endosperm, together with the presence of non-albuminoid nitrogenous compounds in the perisperm, explains the notable percentage of nitrogen found in bran as ordinarily roughly removed.

The small proportion of albuminoids present in the cells of the fourth layer, as evidenced by their feeble response to the proteid tests, together with the very considerable quantity of gluten which we have shown to exist in the central four-fifths of the grain (*i.e.*, the portion lying within the fourth layer), justifies us in the conclusion that by far the major portion of the nutritious nitrogenous matters exist in entire independence of the "gluten cells."

The difficulties which attend the complete isolation of these cells, however, have as yet rendered impossible any accurate estimation of the proportion of their proteid contents. Admitting for the moment that the "gluten cells" contain albuminoids in any noteworthy amount,* there are yet present conditions which seriously affect, if they do not entirely nullify, the nutritive efficiency of this portion of the grain.

The first of these conditions is the presence of the rough bran scales, which, by increasing peristalsis, so hasten the

* Apart from the statement of Schenk, above cited, the entire absence of gluten in the cells of the fourth layer has been latterly affirmed by Mège-Mouriès, who is quoted by Payen ("Substances alimentaires") to the effect that these cells are "filled with nitrogenous substances, of which gluten is not at all one." He finds the cells in question to contain, in addition to the salts of magnesium, lime, and potash, a peculiar diastatic ferment, cerealin, whose function is the transformation of the starch of the grain into dextrine and glucose for the nourishment of the germinating seed.

passage of the entire intestinal contents that complete digestion and absorption are prevented. The second is that, owing to the dense cellulose walls of the "gluten cells," their contents are practically unaffected by the digestive juices. The fact that the presence of branny scales in the digestive tract prevents the thorough digestion of the intestinal contents and induces the passage of fæces containing a considerable excess of undigested nitrogenous matter is fully attested by the observations of Meyer and Rubner.* Edward Smith† has also closely studied the economic phase of this subject, and reports most unfavorably upon the use of branny foods, stating that the diminished absorption of nutritive matters entailed by their use more than counterbalances the (apparent) gain in cheapness. Of interest in this connection is the observation of Fr. Hofmann,‡ who noted that the amount of fæces passed upon a meat-diet was remarkably increased by the addition of cellulose to the food taken.

The feeble response of the "gluten cell" to reagents and digestive juices has been noted by several observers. Thus, Donders§ states that these bodies are digested by the herbivora, but not by dogs or man. Similar results are recorded by Poggiale,|| and for domestic fowls by Meissner and Flüge.¶ J. Lehmann** records the feeding of pigs for thirty-two days on bran which contained almost no flour, with a nearly negative gain in weight, although the bran contained 15.5 per cent. of nitrogenous matters.

The ability of herbivora to digest "gluten cells" and similar bodies is probably due to the relatively powerful amylolytic ferments of their digestive fluids, for it has been demonstrated that pepsin is unable to traverse cellulose.†† It has also been shown by one of us‡‡ that the cells of the fourth layer are to all appearance entirely unaffected by prolonged artificial digestions,—salivary, gastric, and pancreatic,—and, further, that their contents were but little changed and their walls in

no wise disintegrated by immersion for some days in strong acids and alkalies.

Lately, however, in the course of an admirable paper upon the nutritive relations of gluten, Rubner§§ has stated that, although branny foods increase the amount of nitrogen in the fæces, fully three-fourths of the nitrogenous matter of bran is digested. In the bran used there was present 4 per cent. of nitrogen, "equalling 25 per cent. albuminoids," while in the bran obtained from the fæces of the persons under observation only 0.9 per cent. of nitrogen was obtainable. We hesitate in criticising the results of so able an observer, but it seems to us that there were two sources of error in this portion of his investigation. In the digestion of bran, the free adherent gluten, which properly belongs to the more central layers, is, of course, readily dissolved, with a consequent reduction in the nitrogen of the bran. Apart from this, however, a loss in nitrogen is to be expected from the diffusion of nitrogenous crystalloids; further, the "gluten cells" become so separated from the true bran during their maceration in the intestinal contents that it is nearly, if not quite, impossible to recover them.

In order to satisfy ourselves regarding the digestibility of the cells of the fourth coat, we have subjected bran with its adherent "gluten cells" to actual digestion by twelve well-nourished adults,—six males and six females. These twelve persons were selected from a larger number by excluding all whose fæces exhibited under microscopic examination any inefficiency in the amylolytic and proteolytic digestive ferments, as evidenced by the presence of starch or muscle fibre in more than a minimal amount. Sources of error arising from individual peculiarities having been eliminated by the number of persons under observation, and the best conditions for digestion having been obtained, these persons then received daily for three days, in addition to their regular food, one ounce of thoroughly-boiled bran. Their fæces for the last two days of the treatment were submitted to close microscopical examination, with results so nearly uniform as not to require tabulation. In every case the number of "gluten cells" present was more than sufficient to render a diagnosis of the food taken a matter of great

* Zeitschrift f. Biologie, vol. vii.; *ibid.*, xix., 1883, p. 46.

† "Foods," 1875, p. 175.

‡ Voit, Sitzgsber. d. Bayr. Akad., December, 1869.

§ Physiologie (German ed.), p. 273.

|| Comptes-Rendus, 1853.

¶ Zeitsch. f. Rat. Med., vol. xxxi. p. 185, and vol. xxxvi.

p. 184.

** Amtsb. f. d. Handl. u. Wer. d. Königr. Sachsen, 1868,

No. 2.

†† Hammersten, Jahresber. d. Tierchemie, vol. iii. p. 207.

‡‡ Randolph, Proc. Acad. Nat. Sciences, 1883, p. 311.

§§ Zeitschr. f. Biologie, vol. xix., 1883, p. 46.

ease. In two-thirds of the cases no evidences of disintegration of any of the cells could be found upon repeated examination of many fields from each specimen. In four cases a small proportion (less than ten per cent.) of the numerous cells examined showed evidences of having been affected by the digestive process, the cell-contents having become lighter in color and less opaque. If, however, any true digestion of the cells had occurred, it is evident that many of these elements in different stages of disintegration would have been seen.

As a rule, we found that the several layers of the bran presented an appearance, not of having been digested, but simply of having been subjected to prolonged maceration. Thus, the three coats of the true bran, while entirely unchanged, were frequently found separated from each other. We had expected to find the fourth layer closely adherent to the third, as is the case in dry bran, but in the majority of specimens these two coats became separated, and occasionally large sheets of "gluten cells," to all appearances perfectly normal, were seen. As a rule, however, that portion of the fecal mass representing the meal at which bran was taken* was found to contain these thick-walled cells in nearly every field.

A study of the nutritive relations of a

given food may be approached from three sides: First, from that of the exact chemical composition of the food, a knowledge absolutely essential to any scientific scheme of diet; second, from that of the various excretions of the individual or animal upon the diet in question; and, third, from the more clinical stand-point of study of the effects exerted by a given diet upon the growth and nutritive processes of the organism under observation. After an examination of branny food in the light of the first two methods, we attempted its study by the third. To this end, six young pigs of the same litter, and all in fair health, were weighed and placed under the same conditions, in pairs, in three separate bins. Those in the first bin daily received bread especially made from whole wheat-flour, in amount corresponding to one-fourth pound of dry bread each. To those in the second bin was given a corresponding amount of bread made from wheat whose three external coats only had been removed. The pigs in the third bin received the best white bread in amount corresponding to the standard above mentioned. A sufficient (fixed) quantity of water was given twice daily. The following table shows the weight of each pair at the beginning of the observation, and at the end of respectively ten and thirty-two days thereafter.

Bin.	Age.	Food.	Joint weight March 6.	Joint weight March 16.	Joint gain 10 days.	Joint weight April 7.	Joint gain 32 days.
	Weeks		Lbs.	Lbs.	Lbs.	Lbs.	Lbs.
I.	6	Bread from whole wheat.	24.5	29.0	4.5	33.25	8.75
II.	6	Brown bread from decorticated wheat.....	24.75	28.25	3.5	34.50	9.75
III.	6	White bread.....	25.25	27.25	2.0	33.0	7.75

Comparison of these weights exhibits curious and apparently contradictory results,—viz., that during the first ten days the gain was greatest in the pigs fed upon whole-wheat bread, whereas at the end of thirty-two days of such feeding the gain was most pronounced in the pigs fed upon bread made from wheat whose three outer coats had been removed. The cause of this variation in results is not far to seek.

* We did not find it needful to give with the bran any coloring-matter to differentiate in the feces the meal at which it was taken, as the scales of bran were always a sufficient index. When requisite, such differentiation may readily be obtained by the method of Cramer (Zeitschr. f. Physiol. Chem., vol. vi. p. 354) or that of Rubner (l. c.).

At the commencement of the experiments the animals were small, and the food given was in each case more than sufficient to replace the waste in both the tissues and the circulatory fluids. Even the pair fed upon bread containing the innutritious and waste-inducing bran digested and absorbed sufficient proteid matter to supply the needs of the tissues, and normal growth was also favored by the presence of a bulky intestinal contents of a mechanically stimulating nature, and also by the nutritive salts which were present in this bread in larger amounts than in the others. On the other hand, at the end

of the thirty-two days the animals had notably increased in size; the food given was then barely sufficient for the needs of the economy, and any conditions impeding its complete digestion and absorption produced a notable effect upon the rate of growth of these young animals.

It must be borne in mind that these experiments relate only to the value of the different breads when taken alone, to the exclusion of other foods. The experiments of Rubner before cited leave no doubt that a white bread contains more assimilable nutriment than does one made from the whole wheat; but this does not render it a desirable food-stuff for exclusive use. On the contrary, a weaned but still quite young omnivorous mammal thrives better upon an exclusive diet of bran bread than on white, and presumably because the earthy and alkaline salts are present in greater abundance in the former, and also because the indigestible constituents tend to give to the intestinal contents that bulk and consistence which are essential to the hygiene of the digestive tract. But, as has been shown by Edward Smith and others, the branny scales are needlessly irritating and unduly hasten the passage of food* but partially digested and absorbed. The end which popular hygiene attempts to effect by the retention of bran in breadstuffs can be better attained by other means. Thus, the nutritive salts of food so frequently lost in ordinary methods of preparation are readily restored by the concentration of the liquor in which meats and vegetables are cooked into a soup-stock, as is practised in almost every French kitchen. Again, the various fresh green vegetables used as salads yield in abundance these inorganic food-stuffs, the presence of which we have seen is indispensable to normal tissue-activity. A further advantage of these and other succulent vegetables lies in the fact that their cellulose, while efficient in giving proper bulk and consistence to the stools, is, as compared with bran scales, soft and unirritating to the digestive tract.

From these facts, old and new, which have been presented, the following deductions appear to us justifiable:

* An observation worthy of mention in this connection is that of Rubner, who finds that, while the presence of much woody fibre and harder cellulose in the intestinal contents induces the passage of stools containing an excess of undigested proteid foods, the absorption of fats under the same conditions is not materially affected.

I. The carbohydrates of bran are digested by man to but a slight degree.

II. The nutritive salts of the wheat-grain are contained chiefly in the bran, and, therefore, when bread is eaten to the exclusion of other foods, the kinds of bread which contain these elements are the more valuable. When, however, as is usually the case, bread is used as an adjunct to other foods which contain the inorganic nutritive elements, a white bread offers, weight for weight, more available food than does one containing bran.

III. That by far the major portion of the gluten of wheat exists in the central four-fifths of the grain, entirely independent of the cells of the fourth bran layer (the so-called "gluten cells"). Further, that the cells last named, even when thoroughly cooked, are little if at all affected by passage through the digestive tract of the healthy adult.

IV. That, in an ordinary mixed diet, the retention of bran in flour is a false economy, as its presence so quickens peristaltic action as to prevent the complete digestion and absorption not only of the proteids present in the branny food, but also of other food-stuffs ingested at the same time; and,

V. That, inasmuch as in the bran of wheat as ordinarily roughly removed there is adherent a noteworthy amount of the true gluten of the endosperm, any process which, in the production of wheaten flour, should remove simply the three cortical protective layers of the grain, would yield a flour at once cheaper and more nutritious than that ordinarily used.

BIOLOGICAL LABORATORY OF THE UNIVERSITY OF PENNSYLVANIA, May 31, 1884.

ETHERIZATION BY THE RECTUM —REPORT OF FOUR CASES BY YVERSEN'S METHOD.

*Read before the Philadelphia County Medical Society,
June 18, 1884.*

BY JOHN S. MILLER, M.D.

I DESIRE to report four cases of etherization by the rectum,—a method of producing anaesthesia first suggested by Dr. Axel Yversen, of Copenhagen.

These cases were in my recent practice; and to Drs. Louis Jurist and A. B. Hirsh I am indebted for assistance rendered, and for many of the observations made. In

two of these cases the mucous membrane of the bowel was prepared for its respiratory function, as it ought to have been in all, by a restriction of diet and the use of purgatives. No preliminary hypodermics were used. The method of administering the ether was simple. A definite quantity was placed in a bottle (only partially filling it), was vaporized by a water-bath at 120°, and the vapor conducted to the rectum by a rubber tube terminating in a recurrent catheter, the free or recurrent end being closed by pressure of the thumb during the inflation of the bowel; the expiratory act was performed by removing this pressure and removing the water-bath.

The first case was one for minor operation, demanding only primary anesthesia. This patient had not been prepared, and sufficient precaution was not taken against the introduction of ether-vapor in too great a quantity, and of liquid ether, by an overboiling in the apparatus. Almost immediately he complained of burning and tenesmus, the abdomen became promptly and greatly distended, and there were colicky pains. In about one minute he noted the taste of ether. A portion of the vapor was allowed to escape, and no more was given. The pain ceased, intoxication soon began, and in six minutes he was sufficiently anesthetized for operation. The pulse was full, and respiration was easy. Two minutes later he returned to consciousness, but seemed dazed. The struggling had been trifling. There was no vomiting, and no diarrhoea followed. One ounce of ether was used.

The second patient was an adult male, from whom I removed an exostosis of the vomer,—an operation requiring full anesthesia. In this case a sufficient laxative had been given the previous night. Two hours before the operation he had been allowed an ordinary breakfast. This patient, too, experienced a prompt burning and discomfort in the rectum, but at no time great, and soon ceasing. Ether was tasted in about two minutes, and noted on the breath. The abdomen seemed distended, and some cramp-like pains were experienced. A considerable amount of vapor was then allowed to escape, with instant relief. After waiting two minutes without the development of further phenomena, a somewhat less amount of vapor was introduced, and (the catheter being withdrawn) was left for gradual absorp-

tion. The stage of excitement was short, marked by a pleasant delirium, and without motor activity. Full anesthesia was obtained in eleven minutes from the first introduction of the ether vapor, and was perfectly maintained during the eight minutes of operation. Escape of residual vapor was secured by a gentle kneading of the abdomen and separation of the nates. The posterior nares not having been plugged, considerable blood regurgitated from the stomach after operation. This vomiting cannot with any certainty be attributed to the ether. No diarrhoea followed. An ounce and a half of the anæsthetic was used.

The third patient, also an adult, robust male, was subjected to acupressure of the internal saphena vein, with destruction by means of Vienna paste of several neighboring vessels,—an operation also requiring full anesthesia. He had received a laxative the day before, and an enema on the morning of operation, and had taken a moderate breakfast. The sensation of warmth and tenesmus was immediate, but soon ceased. The abdomen became distended, and he complained of epigastric pain. A partial escape of vapor was permitted, and he had instant relief. A few minutes later the bowel was again inflated, and the tube withdrawn. Enough vapor remained after withdrawing the tube to produce complete anesthesia in a total of fifteen minutes; and no further introduction was required to maintain it. There had been almost no stage of excitation, and that with no other phenomena than an immoderate laughing. He recovered promptly. No vomiting or diarrhoea followed. A little less than two ounces of ether were used.

The fourth case was that of a medical gentleman in good health, whose love of science led him to volunteer a passive part in these experiments. This time the bowel had not been prepared, although an ordinary movement had taken place five hours previous. On introducing the vapor, there was slight burning and tenesmus, but no cramps. Intoxication was soon induced, and the doctor seemed most of all to enjoy the proceedings. Pulse and respiration were normal. A lively peristalsis now put an end to this mode of administration, and terminated the experiment.

The only reason for quoting this case is the evidence it furnishes for the neces-

sity of preparing the bowel,—a necessity which excludes this method of etherization from our resources in accident and emergency cases.

This case completes the four, and I have had no other opportunities for observation.

Some question having arisen as to whether the vapor really does pass the ileo-cæcal valve, I deemed this a subject for legitimate vivisection, and, etherizing a cat per rectum, opened the abdominal cavity, and noted that the small intestine was as greatly distended as the large.

In this method of etherization the most obvious advantages are as follows:

1. Dyspnœa is avoided, and the patient is saved from the anxiety due to a sense of impending suffocation.

2. There is avoided the danger of simultaneous irritation of the superior laryngeal and pneumogastric nerves at the periphery,—these irritations neutralizing each other in the respiratory centre, and suspending respiration entirely.

3. The danger of asphyxia is lessened,—the patient not being drowned in his own mucus,—and the integrity of the pulmonary mucous membrane as an organ of gas-exchange is preserved. Of course some vapor finds itself in the lungs, and acts there as a local irritant,—elimination being by that channel. But the quantity is not great, and does not constitute a source of danger. In the cases reported, the increase in secretion was too trifling for discovery.

4. The stage of excitation is therefore not prolonged by the struggles for breath. In general it may be said that the delirium of any alcoholic intoxication is a pleasant and good-natured one, unless the patient is crossed,—as he certainly feels himself to be when a wet towel is pressed over his face.

5. Nourishment may be taken before operation, to sustain the powers of life and lessen the dangers from shock.

6. Return to consciousness is prompt,—this stage not being prolonged by carbonic-acid poisoning.

7. The anæsthetic seems as readily suspended as by the ordinary method,—the bowel being promptly emptied by gentle massage.

8. Economy in ether is an advantage hardly to be mentioned with more important considerations.

The more obvious disadvantages are—

1. The exposure of person required,—the abdomen being necessarily under observation, even if the catheter be inserted under cover.

2. More judgment and experience is required in the administration than by the ordinary method,—over-boiling in the apparatus, and too much distention, being both painful and highly dangerous. The warning to cease is sudden, and must be immediately obeyed.

3. Just as the other mode is inconvenient in oral surgery, so in perineal operations is the apparatus needed for this method in the way.

4. In abdominal surgery, or if there be marked intestinal lesion, this mode is contra-indicated.

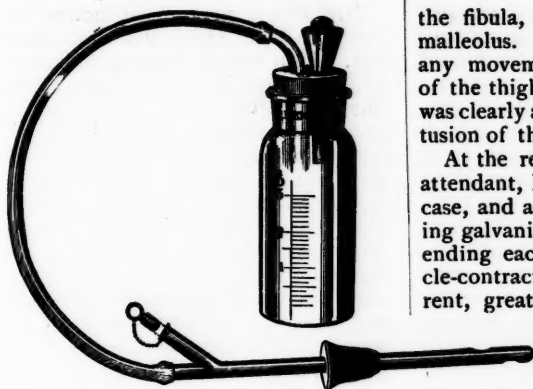
5. The inapplicability in cases of accident and emergency, when time cannot be allowed to prepare the bowel, has already been mentioned.

6. Diarrhœa has been noted in seven out of the thirty-seven cases on record, though in none of mine.

I believe this sequel is due to pre-existing intestinal lesion, to the lack of preparation, to a too great distention of the bowel, or to the accidental introduction of ether in liquid form. Furthermore, my method has differed from that of other experimenters in this respect, that, instead of allowing the vapor to remain indefinitely, I secured a constant change by using a recurrent catheter, and introducing a certain quantity, or permitting it to escape, as indicated.

Other points of advantage and disadvantage may occur in later experience and to other observers, and new dangers may be discovered. But I am convinced that this method is worthy of further trial, and will find its place in surgery, fulfilling its own, though not *all*, indications. Like all else in therapeutics, it must pass through the stages of bungling use, condemnation, and revival.

[Dr. Miller then exhibited a form of apparatus which he had had made by Charles Lentz & Sons, No 27 South Tenth Street, for this purpose. It consists simply of a water-bath, a graduated bottle provided with a funnel and valve for pouring in the ether, and a supply-pipe for conducting the vapor to the rectum. This tube terminates in a straight recurrent catheter, the exhaust-channel of which is controlled by



C. LINTZ, Phila.

a valve. The catheter is furthermore provided with a movable collar for pressure against the anus,—it having been found that the vapor tends to escape by the side of the tube.]

834 NORTH NINETEENTH STREET, PHILADELPHIA.

CASES OF TRAUMATIC SCIATICA ILLUSTRATIVE OF ITS RELATION TO HIP-INJURIES.

BY G. BETTON MASSEY, M.D.,

Electro-Therapist to the Philadelphia Orthopaedic Hospital and Infirmary for Nervous Diseases.

ON the 6th of January of the present year I was called in consultation to see an aged gentleman of this city who had slipped and fallen upon an icy spot of pavement just eleven days previously. In falling, he struck heavily on the left hip, and it was with difficulty that he arose and walked home, a distance of some four and a half blocks. His family doctor, a prominent physician of the city and an expert diagnostician, when called in, searched diligently for fracture, but could find none, notwithstanding the evident helplessness of the limb and the attacks of excruciating pain that was made worse by movement. At the time I was called in, the physician had about concluded that the pain must be imaginary.

On examination, the absence of any kind of fracture was apparent. The patient could lift the limb but a few inches from the bed. He was suffering from continuous and severe pain, felt most at points corresponding to the sacro-iliac notch of the affected side, the rear of the head of

the fibula, and the rear of the external malleolus. The pain was aggravated by any movement, but especially by flexion of the thigh and extension of the leg. It was clearly a case of sciatica caused by contusion of the nerve in falling.

At the request of the patient's medical attendant, I joined him in the care of the case, and applied the continuous descending galvanic current to the affected nerve, ending each sitting with a series of muscle-contracting interruptions of the current, great gentleness being required at first to avoid aggravating the pain temporarily. Good effect was manifest after the first visit, and eleven applications

sufficed to establish a complete cure, recent careful inspection failing to detect either awkwardness of gait or atrophy of the posterior muscles.

Case II. was that of a German woman, aged 73, the mother-in-law of a well-to-do iron-worker. The old lady had become estranged from her son-in-law's family and had gone to live with a son, who was apparently very poor and very mean. On the 15th of January, 1883, she fell on the ice, striking the right hip and fracturing the neck of the femur outside the capsular ligament. Two weeks elapsed before the son-in-law heard of the accident, and during this time the patient was totally without either surgical attention or nursing. On being called in, I found the limb one and a half inches shorter than its fellow, and greatly everted. At the seat of the injury the great trochanter was found lost in an abundant deposit of callus. No crepitus could be found. Great pain existed throughout the distribution of the large sciatic nerve, being especially felt in the peroneal and posterior tibial branches.

Considering the age of the patient and the attempt at union already made by unaided nature, it was deemed unwise to interfere with the broken bone: so remedial efforts were entirely directed towards the relief of the sciatica. A series of blisters were directed; chloroform injections made; various stimulating and anodyne liniments applied; together with the internal administration of opiates and sedatives; but I am bound to say the case seemed slowly to improve without being affected by any of these remedies. Electricity was not used, as the patient was

too far from my office to make it possible to apply it with sufficient frequency, and the friends declined to have her moved to a hospital. The pain continued over a year, in gradually-decreasing severity, and, though the patient has been able to walk with crutches now for some months, there is much atrophy of the muscles supplied by this nerve.

In addition to the cases detailed above, I find notes of four cases of traumatic origin among the large number of cases of sciatica treated by myself at the electric clinics of the Infirmary for Nervous Diseases.

Case III.—A healthy hod-carrier, of Irish birth, was sent from Dr. Wharton Sinkler's clinic November 16, 1881. Seven weeks before, while carrying his usual burden up a ladder, the right foot slipped on a stick and threw the thigh into extreme flexion. He immediately felt an acute pain at the point of emergence of the sciatic and following that nerve down the thigh and into the peroneal. It was sharp and pricking in character, and had remained continuously present since the accident, being worse at night. He was unable to walk more than a block at a time, and presented a gait markedly characteristic of sciatica. No atrophy was found. He was placed upon static electricity, positive sparks being drawn from the painful points and course of the nerve. After the fifth application it is noted that he was much better; after the twelfth, that he walks three miles to the hospital; and after the twenty-second application he was discharged cured.

Case IV.—A carpenter, aged 68, was sent from Dr. Sinkler's clinic September 29, 1880. A healthy man, eight months before admission he fell on the ice, striking the right hip. He was compelled to remain in bed six weeks, suffering from pain in the region of the small and great sciatics. His physician was uncertain whether fracture was present or not.

On examination, the gluteal and flexor muscles of the right leg were found much atrophied. He complained of great pain in the course of the right sciatic to the knee, and also in the distribution of the external peroneal. At times he felt some pain in the left leg. He was placed on the constant galvanic current thrice weekly. At the end of forty-two applications he is noted as entirely well.

Case V.—A man, aged 40, was sent from Dr. Weir Mitchell's clinic May 6, 1881. Four months before, he had fallen and dislocated his right hip. This was reduced shortly afterwards, and he remained in hospital eleven weeks, during which time and up to his appearance at the clinic he suffered from much pain throughout the sciatic distribution of that side. There was considerable atrophy of the buttock and limb, a difference of one and a quarter inches being found six inches below the trochanters. He was placed upon five-grain doses of iodide of potassium and the constant current thrice weekly. After thirty-five applications of the battery and considerable quantities of the iodide, it was found that the pain had ceased, but that some atrophy remained.

Case VI.—A porter, aged 39, was sent from Dr. Mitchell's clinic, June 20, 1881. Fifteen months before, he had been crushed between a platform and a moving car, fracturing the pelvis on the right side. At his first appearance at the clinic some crepitus was still present, and there was two inches shortening of the right leg. He complained of much pain in the region of the sciatic nerves of that side, which was increased by motion and exercise. He had been blistered and was taking five-grain doses of the iodide when sent to the electrical clinic. After twelve applications of galvanism, with some benefit, the summer vacation compelled a discontinuance, and he did not reappear in the autumn.

The obvious conclusions to be drawn from these cases are the following:

1. Surgeons called to cases of hip-contusion or suspected fracture should not fail to search for evidences of injury to the delicate nervous structures here situated.

2. If such evidences of nerve-injury are found, prompt and energetic measures of relief are indicated, the importance of which is emphasized by the complete and rapid recovery of the two cases which were treated early.

3. Of the four remaining cases, one was distinctly benefited and two were cured by more or less long-continued (one to five months) galvanic treatment. The fourth did not receive galvanic treatment, and was fully a year in duration.

1502 ARCH STREET, PHILADELPHIA.

TRANSLATIONS.

THE VIRUS OF TUBERCULOSIS, AND ITS COMMUNICABILITY.—In the proceedings of the Paris Academy of Medicine for May 2 there is a report presented by Dr. Hérard, in the name of a commission composed of MM. Laboulbère, Peter, and Hérard, in which a very fair exposition of recent views of the etiology of tuberculosis is given. The following abstract is from *La France Médicale*. In the report of the commission on the Portal prize, M. Hérard discusses two points,—the existence of a virus of tuberculosis, and the transmission of this virus. The existence of a virus was claimed to have been established by Martin's experiments, which showed that if tubercular matter be used for inoculation, the product obtained is indefinitely re-inoculable; whereas, if inert substances are used, only nodosities are obtained, which, although having the exact external appearances of true tubercles, are not susceptible of indefinite re-inoculation.

From these experiments, M. Hérard considers it finally established that tuberculosis is inoculable, specific, and virulent, because virus alone has the power of infinite reproduction. The discovery of Koch's bacillus has not yet definitely solved the question of the parasitic nature of tuberculosis, but it has established certain facts: first, the bacillus tuberculosis has certain well-marked characters by which it is recognized, the bacillus of leprosy alone bearing some resemblance to it; secondly, the bacillus is constant,—it is found in all tubercular products, though in varying quantities. Possibly, in the situations where the bacilli are less numerous, it is because they have been expelled, giving place to ulcerations or cicatrices.

The researches of Malassez and Vignal afford ground for believing that tubercles may exist without bacilli proper, their place having been taken by zoogloea. In subsequent experiments, it was found by these observers that in successive preparations sometimes the zoogloëic masses, sometimes the bacilli themselves, would appear.

Graucher has recently reported a case of phthisis without bacilli in the sputa; but such cases are exceptional.

In order to prove conclusively that the bacilli are the cause of phthisis, it would be necessary to follow Pasteur's plan, by cultivating the bacillus, and see if the same results are obtainable by it as with the tubercular products themselves. Koch's experiments have been conclusive on this point, although other experiments, conducted in France, did not yield the same results.

The questions of the etiology and prophylaxis of tuberculosis remain for elucidation, though the search now going on will doubtless show conclusively the contagious character of tuberculosis.

With regard to heredity, it certainly exists; but does the patient inherit it as he does syphilis, or inherit simply a predisposition to contract the disease? The reporter believes this to be the more probable, and he claimed that it obtained a solid support in the experiments of Landouzy and Hippolyte Martin. Much yet remains to be studied, however, in order to decide this question positively.

A CAUSE OF HIGH TEMPERATURE IN HYSTERIA.—M. Du Castel reported, at a recent meeting of the Société Médicale des Hôpitaux, Paris, the case of an hysterical girl convalescent from an attack of sore throat, who displayed remarkable alternations of temperature. Several thermometers were employed, but they all showed high markings, although her general surface did not seem hot to the touch: one day the thermometer marked 48° C., and on another 73° C. (163.4° F.). By carefully watching the patient it was found that she had learned the trick of lightly tapping the end of the thermometer, which caused the mercurial column to ascend as far as she wished.—*Revue de Thérapeutique Méd.-Chir.*, No. 11.

COMMUNICATION OF DISEASE BY INSECTS.—In a communication in the *Crónica Méd.-Quirúrgica de la Habana*, Dr. Finlay states that he found that mosquitoes which had bitten a yellow-fever patient carried away with them the filaments and spores of a peculiar nature, which were especially found upon the proboscis. He thinks it fair to conclude that disease may be carried in this way, although he does not look upon it as the only method of communicating yellow fever.

PHILADELPHIA
MEDICAL TIMES.

PHILADELPHIA, JULY 26, 1884.

EDITORIAL.

THE EPIDEMIC IN FRANCE.

ALL our exchanges, as well as the daily press, are devoting considerable attention to the epidemic prevailing in the south of France, which is probably genuine cholera, in spite of the asseverations of Dr. Fauvel to the contrary. In a communication read before the Academy of Medicine at Paris, in June, M. Fauvel, who is the Inspector-General of the Health Service, and who is universally recognized as an authority upon the subject, said that the present epidemic was not Asiatic cholera, but simply a prevailing bowel-disorder arising from local causes, due to an enormous collection of troops aggregated together under hygienic conditions which he could only designate as deplorable. This opinion was also expressed by a Committee of consultation on Hygiene, in a report to the Minister of Public Health. In reaffirming the opinion, M. Fauvel did not claim infallibility for his judgment, but expressed himself with much positiveness as committed to this view,—that the slow progress of the epidemic, the manner in which it had developed, and its evolution, are not in harmony with the hypothesis of Asiatic cholera, which commences with extreme violence, affecting many individuals, and propagating itself with great rapidity, so that the epidemic attains its maximum intensity by the end of a few days, after having attacked all the individuals susceptible to its influence. This is well observed on board of a ship, where in three or four days all who are capable of contracting the disease are affected and either die or get well, and, as those who recover acquire

immunity from further attack, the epidemic rapidly ceases. This is also usually seen in large cities invaded by Asiatic cholera. But the progress of the disease has been very different from this in Toulon. Under conditions most favorable for its development, its course has been slow, the mortality, at first small, has gradually increased, and the disease has not shown much tendency to spread to other cities, although the great exodus from Toulon must have disseminated the germs in every direction.

On the other hand, Dr. Robert Koch, from personal investigation at Toulon, declares that the disease is true cholera, and expresses the opinion that it will probably spread through Europe during the summer, although America may escape on account of its distance and absence of land communication, and its facilities for quarantine. In the view of Koch as to the nature of the disease the English papers coincide, and they declare that it was the French troop-ship *Sarthe* which brought the disease from Cochin-China to Toulon, the disease attacking first the marines and sailors.

Whatever opinion may be held as to the true nature of the epidemic or its original source, there will certainly be no dispute as to the unhygienic condition of the affected cities. The filth and absence of sanitary protection in the Mediterranean cities constitute a menace to health and a standing invitation to disease. Filth means disease, when interpreted in biological terms, and, where a favorable soil exists, the germs of disease, whether microscopic or ultra-microscopic, will not be slow in developing. If an epidemic, or a succession of epidemics, will teach this lesson to the health authorities on the Mediterranean or elsewhere, it will lead to an advance in State medicine which may eventually be worth all that it cost, in preventing future plagues.

The circulars recently issued by health

boards in New York, Philadelphia, and other cities may exaggerate the danger of a visit from the cholera to the United States, but if a cholera scare will lead to improved sanitation, and to increased activity of health boards in removing and abating nuisances, we shall be the gainers by it in the end. Without wishing to belittle the danger, we think, however, that the prospect is a remote one of having during this summer any great increase in the deaths from bowel-disorders, especially in this city, where the surroundings are clean and life usually temperate and well regulated.

In the last epidemic, of 1873, Philadelphia had only eight cases which might have been due to the prevailing poison, of which six recovered, and the two that died were not positively recognized as being true cholera, and may have been due to local causes. Pittsburg had four cases showing a contagious character, but an epidemic was prevented by the prompt action of the health authorities. As cholera is so clearly a preventable disease, we notice with pleasure that the gravity of the danger has been recognized by the government in sending instructions to consuls at European ports, and that the President has also issued a timely message, which we give on another page.

FUNERAL ETIQUETTE FROM A MEDICAL STAND-POINT.

IN cases of death from contagious disorder, public funerals are very properly forbidden by health authorities, although occasionally a "wake" is surreptitiously held, with its unfortunate but natural results; of this, however, we need not speak, as the wisdom of thus limiting infection is acquiesced in generally by intelligent people, and the law is usually obeyed. There are some minor infractions of the laws of health that should be mentioned, which physicians have repeatedly called attention to, but the higher laws of fashion and

custom appear to exert a preponderating influence. For instance, there are very few days in the year when delicate women can ride long distances in a close carriage, and then, reaching the cemetery, stand upon the damp, cold sod for a greater or less time during the final ceremonies at the grave, without physical injury to themselves.

A custom also to which especial attention should be directed, in order to have it changed, is that of men standing bare-headed in the open air, apparently indifferent to the burning sun of July or the cold winds of March, without regard to the season or the weather. Taking into consideration the associated conditions, the necessarily depressing influence upon the emotions of the sad duty which at the time is pre-eminent in the mind, the physical condition resulting from sitting in a cramped position during a tedious ride in a carriage, and the unaccustomed exposure to the weather, it is not surprising that cases of illness result from the removal of the head-covering, particularly in elderly people with an enfeebled circulation. On a hot day there is danger of producing, if not actual sunstroke, at least a congestion of the membranes of the brain which causes persistent and violent headaches, and to this ministers and those officiating are particularly liable.

Whether the day be hot or cold, wet or only windy, let the services be held at a place where the health of the attendants need not be imperilled; let delicate and weakly persons be restrained from riding to the cemetery and from standing on the damp ground; and especially let men obey common sense rather than custom, and keep on their hats when they risk a sickness by their removal.

When cremation becomes the universal method of disposing of the dead, of course the above remarks will have no application; but for the present, and probably for some time to come, there will be need

for physicians to raise a warning voice against these minor infractions of hygienic law.

AN OMISSION.

WE are reminded by the *Boston Medical and Surgical Journal* that the list which we recently published of remedies capable of contributing to the health and comfort of travellers is incomplete. We should have added a few catheters and some other surgical appliances. Those who have especial need for such instruments will probably not wait for our recommendation; but we can say that we quite agree with our distinguished colleague that their usefulness is at times beyond question.

NOTES FROM SPECIAL CORRESPONDENTS.

LETTER FROM VIENNA, AUSTRIA.

VIENNA is the most interesting of all European medical centres, and especially so to American students. This perhaps is as much owing to the novelty and pleasure of the life as to the unexcelled opportunities for study and observation. Probably some details of student-life may not be uninteresting to your readers.

In the students' quarter—in the Josephstadt, on the western side of the city—students can get rooms from twenty florins upward per month. Good rooms on the second or third *étage*, including light and attendance, are worth about thirty florins. When heat is also required, a fire can be obtained for a few cents in one of their curious porcelain stoves, with which each room is supplied. In winter-time, when a constant fire is necessary, the expense is about four dollars a month. All the American and nearly all the English-speaking students take their meals at the Reidhof. This is a famous restaurant, where a good dinner or supper, including a half-litre of beer or a quarter-litre of Austrian wine, can be obtained for about a florin. Another great rendezvous for Americans is a *pension*, or boarding-house, on the Schwartzspanier Strasse, about two squares from the Hospital. All the conversation at table is in German. In this way one can very readily, and indeed in a very short space of time, acquire a sufficient knowledge of colloquial German to get on very well. No one eats breakfast, the universal custom being to have simply coffee and bread in your room before starting out

for the day's work. The monetary unit is the Austrian florin or gulden, which is equivalent to about forty-two American cents; but it has a purchasing power fully equal to that of our dollar.

There is always quite a colony of American students in Vienna, numbering in winter from a hundred to a hundred and forty, and in summer about one-fifth of the former number. The majority remain but a few months, though many stay four years. They are respected by their fellow-students for their energetic, quick methods and steady work, and are also very much liked by the docents and teachers in the hospital, because of their liberality and willingness to pay well for instruction. Indeed, almost all the places in the more expensive classes—namely, those allowing special opportunities for diagnostic and operative work—are filled by Americans. Many of the special courses are given in English, for the benefit of the English-speaking students who do not know German. The fees for courses average about twenty florins. But the operative courses and the "touch" courses are much more expensive. Many of the operative courses cost fifty florins for six weeks' work, and some of the famous touch courses in gynaecology cost as much as fifty florins for six lessons of two hours each. These courses are especially prized, and the places in them are often engaged many months in advance. Most of the courses are limited by the University authorities to a certain number of men. Of late years, rich Americans have done what is called "buying up" a class. *E.g.*, a certain course is limited to ten men at twenty florins each: two men go to the docent and say, "We will pay you the fee for the ten men allowed in your class; but we will occupy less of your time and exclude any one else from coming into the course." Any one can readily see that this is equally advantageous both to the teacher and to the student. The former has less trouble and expends less time, and the latter has greater advantages for study and observation. All the teachers are very proud of their knowledge of English, and the way they air it is oftentimes very amusing.

In view of the protracted struggle to admit women into the Philadelphia County Medical Society, it may interest some of your readers to know that they have failed to gain any recognition in Vienna, and are only admitted into Prof. Späth's ward, and then only on a level with the German midwives.

Vienna is the Mecca of surgery, to which its votaries from all parts of the world journey to see the great master, Billroth. One would scarcely imagine the testy old gentleman to be the foremost surgical authority of his time. I went to call on him with some letters from friends of his in London, my object being to record my name in the "fremdenbuch," or visiting-book, and in order

that I might see him operate privately. The surgical clinics at Vienna are conducted by Albert and Billroth. Albert, though not so distinguished a man as his renowned colleague, is preferred by the students, because of his carefully-prepared lectures and his great pains to teach. Billroth frequently misses his clinics. The clinics are held in small amphitheatres, totally inadequate for the number of students who wish to see the details of the operations.

I know of no hospital in the world as large as the Allgemeine Krankenhaus, which has accommodations for over three thousand patients. Although there are other large hospitals in Vienna, this is the largest, the oldest, and the one which has made Vienna famous the world over. Probably no hospital drains so great an area of country and has patients of so many nationalities as this one. Certainly no other medical school has such a heterogeneous collection of students. The hospital is built in the form of a series of quadrangles, opening the one into the other. It is a very old building, and would hardly come up to the modern standard of hospital construction. All the patients wear a uniform, made of a blue-and-white checked muslin. In this hospital Billroth's clinic is the great centre of attraction. It commences each morning at 9.30, and continues until 1. All the instruments are hung around the railing in sets. There are a great many clinical assistants, who obstruct the view very much. In all the operations the greatest care is exercised to stop immediately all hemorrhage. Corrosive sublimate and iodoform are the favorite antiseptic agents employed, both as dressings and as disinfectants for the instruments.

The next most popular clinic is that of Neumann, the syphilographer. For five days in the week the clinic is confined to the male wards. On each Friday the clinic is held in the female ward. All the patients are nude, and are made to stand on revolving pedestals, and are each personally examined by every member of the class. One striking feature of them appeared to be the relatively large number of those who have the initial lesion about the mouth. Chancre of the lip, which is comparatively rare in this country, appears to be a very common site of inoculation in Vienna. A dozen naked men or women walking around among a class of forty or fifty students is a novel sight to an American. Owing to the laxity of morals in Vienna, syphilis is very prevalent. Next in order of popularity will come the clinic of Carl Braun. He is a very stout, slow-speaking German, beloved by all the students on account of his wit and affable manners and because of his readiness to explain all he can for them. In view of the aversion of Philadelphia obstetricians to washing out the uterus after the completion of parturition, it may be interesting to know that

after every confinement in Braun's wards the uterus is washed out with one or the other of the following preparations: one part to two thousand of corrosive sublimate; one part to twenty of carbolic acid; or a strong solution of permanganate of potassium. Each student in his ward, and each nurse before and after every examination, is compelled to disinfect his hands with one or more of these same solutions. During the last four months the death-rate in his own wards was six in a thousand.* The teachers of gynecæic surgery in Germany seem to lack the appliances and the instruments we are accustomed to, and apparently are behindhand as regards both the pathology and the remedial treatment of disorders of the female urino-genital tract, as compared with their English and American confrères. Next in order of importance is the clinic of Schröter,—than whom there is probably no abler teacher of laryngology in the world, saving Morell Mackenzie, of London. He speaks English very well, and takes especial interest in American students. He has an invaluable aid to instruction in the person of an old woman whose throat is apparently made of cast iron, for she seems entirely indifferent as to what you do with it. Upon this living model all the diagnostic manipulations of laryngoscopic surgery are taught. Each student examines, under Prof. Schröter's supervision, all the area possible to explore by the rhinoscopic or laryngoscopic mirrors. Schröter's clinics last from 9 A.M. until 1 P.M., and the more advanced students act as clinical assistants. Probably in no other place in the world is it possible for a student to see and personally examine so many throat-cases. If space permitted, I might describe the other clinics in detail, but I will simply mention that of Kaposi, the successor of Hebra, with his famous clinic for diseases of the skin; that of Ultzmann, and his painstaking labors to instruct the novice in urinary pathology; and that of Nothnagel, with its carefully-conducted course on internal medicine. Abundant opportunities are to be had for laboratory-work in Vienna, and the amount of material for the study of gross and microscopical anatomy and pathology is simply enormous. As an example of the cheapness of material, let me instance a fact that came under my observation while there. A physician in Boston, wishing to make some sections of the temporal bone, sent to Vienna for fifty specimens. These were carefully packed and shipped to him at a cost of four dollars and a half, exclusive of freight. There are several well-known instrument-makers and surgical cutlers in Vienna, the best-known of whom is Reiner. Cutting instruments are very poor, but, on the other hand, special in-

* During the time that Dr. Elwood Wilson had control of the Philadelphia Lying-in Charity, the statistics, according to published reports, showed a death-rate of less than half of one per centum for a period of eighteen years.

struments are remarkably cheap. For instance, Reiner sells a case containing a head-mirror and band, six assorted laryngoscopic mirrors, with handle, and two *applicateurs*, for the remarkably cheap sum of six dollars and a half. The best-known optical instrument maker is Zeiss. But a man who makes equally efficient instruments at about four-fifths the price is Reiker: for instance, a microscopic stand with an Abbey condenser, three eye-pieces, a micrometer, a half, fifth, and ninth lens, and a tenth immersion lens (which have been examined by Dr. Formad, who pronounces them excellent examples of optical workmanship), was purchased at a cost of one hundred and two dollars,—or less than half what they would cost in Philadelphia. Books are cheap in Vienna, especially those published in Germany and England. I saw several standard American books for sale in the shops, among others the works of Agnew, Gross, and Cohen. All the books are sold at a very great discount from catalogue prices; and any one purchasing or importing medical books from Germany or Austria would do well to bear this fact in mind.

CHARLES MEIGS WILSON.

MEETING OF OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETIES.

THE NEW GRAND HOTEL,
SUMMIT, CATSKILL MOUNTAINS, July 13, 1884.

THE Seventeenth Annual Meeting of the American Otolological Society took place here on Tuesday, July 15, and the Twentieth Annual Meeting of the American Ophthalmological Society on July 16 and 17.

Each Society was well attended, many of the members of the one belonging to the other. This is the second year the meetings have been held in this mountainous region, under the hospitable roofs of Captain Gillette, —last year at the Kaaterskill House, this year at the New Grand Hotel. Despite the cool weather, the house was well filled with guests. The Societies have always adopted the plan of meeting in a large hotel, where they all can find accommodations and where they become their own entertainers. The sociability of the members is thus increased, strict attention being given to the meetings, and free from the junketing and outside claims upon their time which prove a disadvantage to so many Societies.

Dr. J. S. Prout, of Brooklyn, the Vice-President of the Otolological, presided, in the absence of Dr. C. S. Burnett, of Philadelphia, the President of the Society.

Dr. H. Knapp, New York City, read a paper on "The Indications for Opening the Mastoid Process," based on some recent observations.

Dr. W. W. Seely, Cincinnati, Ohio, read a paper on "The Treatment of Suppurative Otitis Media."

Dr. J. J. B. Vermyne, New Bedford, Massa-

chusetts, presented two papers, one on "Disease of the Ethmoid, the Consequence of Chronic Catarrh of the Naso-Pharynx, with Exophthalmus;" also one on "Myxofibroma, springing from the Basis Cranii, causing Blindness, and, Seven Years later, Complete Deafness, by Destruction of the Labyrinth."

Dr. C. A. Todd, St. Louis, Missouri, read a paper on "Necrosis of Right Labyrinth—Total Facial Paralysis on the Same Side—Partial Cure."

Dr. J. A. Lippincott, Pittsburg, Pennsylvania, reported "A Case of Mastoiditis Interna Chronica," and Dr. C. J. Kipp, Newark, New Jersey, one on "Tumors of the Auricle."

Dr. C. H. Burnett, Philadelphia, was represented by a paper on "Reflex Aural Phenomena from Naso-Pharyngeal Catarrh, with Objective and Subjective Noises in the Ears."

Dr. S. Sexton, New York City, read papers.

Dr. A. H. Buck, New York City, read two papers, one entitled "Remarks on the Use of Large Doses of Iodide of Sodium or Iodide of Potassium in Cases of Rapid Loss of Hearing supposed to be due to Syphilitic Disease;" the other was on "The Symptoms and Conditions which indicate the Advisability of perforating the Mastoid Bone."

New instruments were presented by several members.

The discussions were able and interesting, and the evening session continued to a very late hour, during which Professor Clark presented a paper on "The Methods of Hearing Noises obtained by Deaf-Mutes."

Dr. C. H. Burnett, of Philadelphia, was re-elected President, Dr. C. S. Prout, of Brooklyn, was re-elected Vice-President, and Dr. J. J. B. Vermyne, of New Bedford, Massachusetts, renews his duties, so ably discharged, as Secretary and Treasurer.

The American Ophthalmological Society convened July 16, twenty-eight members present.

The President, Dr. H. D. Noyes, of New York City, being in Europe, the Vice-President, Dr. W. F. Norris, of Philadelphia, presided. Dr. R. H. Derby, of New York City, Secretary of the Society for the past ten years, resigned, much to the regret of the members. Dr. O. F. Wadsworth, of Boston, Massachusetts, was suggested by him as his successor, and was elected.

Papers were read as on the printed announcement, and several others were presented at the time of meeting.

Dr. T. R. Pooley, New York City, read a report of cases of "Acute Dacryo-Adenitis."

Dr. C. S. Bull, New York City, presented a paper on "Cases of Restoration of the Eyelid by Transplantation of Flap, without a Pedicle, by Wolfe's Method," also one on "Oculo-Motor Paralysis of Central Origin."

Dr. G. C. Harlan, Philadelphia, had a communication on a "Case of Hysterical

Monocular Blindness, with Mydriasis and Blepharospasm."

Dr. E. Dyer, Newport, Rhode Island, presented a description of "A New Perimeter."

Dr. W. F. Norris, Philadelphia, reported cases illustrating "Hereditary Atrophy of the Optic Nerves—Two Cases of Orbital Tumor,"

Dr. B. E. Fryer, U.S.A., Fort Leavenworth, described an interesting and successful case of "Skin Flap Transplantation, without Pedicle, to cover Eyelid after Removal of Epithelioma."

Dr. H. Knapp, New York City, reported cases of "Neuro-Retinitis with Fulminant Blindness, with and without Restoration of Sight."

Dr. H. S. Schell, Philadelphia, communicated a case of "Embolism of the Central Artery of the Retina," and Dr. Arthur Mathewson, Brooklyn, "A Case Illustrating the Natural History of Cataract."

Dr. H. Derby, Boston, called attention to the operation of "Iridectomy in Chronic Iritis."

Dr. W. W. Seely, Cincinnati, Ohio, gave his experience in "Refractive Cases."

Dr. A. Alt, St. Louis, gave a demonstration of microscopical specimens in reference to sympathetic neuro-retinitis produced in a rabbit's eye. Special cases were reported as follows: Dr. L. W. Fox, Philadelphia, offered the "Clinical History of a Case of Sympathetic Ophthalmia;" Dr. J. A. Lippincott, Pittsburg, reported two cases of "Orbital Abscess;" Dr. C. J. Kipp, Newark, New Jersey, a case of "Abscess of the Frontal Sinus;" and Dr. R. H. Derby, New York City, a case of "Gangrene of the Lid, with Subsequent Restoration without Plastic Operation."

Dr. W. S. Little, Philadelphia, reported a case of "Glioma of the Retina, Congenital, Double."

Dr. William Thomson, Philadelphia, made a partial report of the progress of the examination of the employes of the Pennsylvania Railroad as to their color-sense, acuteness of vision, and hearing.

Dr. S. J. Risley, Philadelphia, communicated the history of a case of "Refraction illustrating the Change from Hypermetropia to Myopia in a Few Years."

Dr. W. F. Mittendorf, New York City, reported a case of "Polycoria;" Dr. E. Hutchinson, Utica, New York, a case of "Plastic Surgery on the Lower Lid for Ectropion;" Dr. O. F. Wadsworth, Boston, Massachusetts, a case of "Optic Neuritis associated with Myxœdema;" and Dr. Ott, Cincinnati, Ohio, cases of "Foreign Bodies removed from the Vitreous by the Electro-Magnet."

Dr. Joseph Andrews, Staten Island, read a paper upon the subject of "Jequirity." The discussions on the paper were numerous and instructive.

The officers elected for the ensuing year were:

President.—Dr. William F. Norris, Philadelphia, Pennsylvania.

Vice-President.—Dr. H. Derby, Boston, Massachusetts.

Secretary and Treasurer.—Dr. O. F. Wadsworth, Boston, Massachusetts.

Several new members were elected.

As numerous applications for membership to the Society are being received, a change in the constitution has been made. To become eligible for fellowship now requires five years' practice in ophthalmic medicine and surgery, with satisfactory evidence of knowledge of the subjects, and compliance with the ethical rules of the Society.

The Society adjourned to meet in July, 1885, at a place to be selected by the Secretary.

W. S. L.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA NEUROLOGICAL SOCIETY.

A STATED meeting of the Society was held on Monday evening, April 28, the President, Dr. S. WEIR MITCHELL, in the chair. Dr. J. HENDRIE LLOYD read a paper entitled

REPORT OF A CASE OF PSEUDO-HYPERTROPHIC MUSCULAR PARALYSIS WITH BONE-LESIONS.

Sarah C., æt. 17, was one of the first inmates of the Home for Crippled Children after its establishment by Mrs. Innes, in the early winter of 1883. The patient presented, when first seen, an appearance of great obesity. The fat was generally distributed to the face, neck, trunk, gluteal regions, arms (partial), and legs. Some of the muscles of the forearms were slightly wasted. The appearance was one of great robustness of health, and the accumulation of fat and general outlines of the figure were such as to suggest an overfed middle-aged woman, rather than a girl but half advanced in her teens. Upon closer inspection, there was discoverable a strange contrast to this appearance of health. It could be readily seen, then, that the patient was a complete cripple. So absolute was the loss of power that she either lay supine, or was propped with pillows in a large chair, the body spreading out, as it were, by the mere force of gravitation, and without muscular resiliency or the control of will-power.

The girl was, and now is, so helpless that it is impossible for her to assume the sitting from the reclining position; she cannot turn upon her side without assistance, and it is with the greatest difficulty that as she lies upon her back she crosses one leg over the other. She retains, however, some power in her arms, especially the forearms, and, although

these regions are evidently wasting, they alone seem to possess what fraction of power the girl can command, and with them she can sew, crochet, and do other work requiring skill and training.

The details of her condition are briefly as follows. The muscular system presents in many places marked enlargements. These are evident especially in the deltoid and lumbar muscles, and in the calf. The muscles in these regions have a dense, doughy feel, and are overlaid with subcutaneous fat, with which they appear so intimately connected that it is difficult to detect their exact limitations. They are very little, if at all, subject to the will, so that their passive condition and their envelope of mottled and lifeless-looking skin are very suggestive, to one who handles them, of some profound pathological change.

This pathological change has been demonstrated by the microscope, and is in accord with the classical description of pseudo-hypertrophic muscular paralysis. With the aid of the little instrument of Dr. Harte, of this city, specimens of the muscular tissue were taken from the lumbar region and the calf. Dr. William E. Hughes kindly prepared these for examination, by teasing them, as the fragments were too small for embedding and cutting. The specimen from the calf presented under the lens an interstitial hyperplasia, with granular changes in the muscular fibre, and a marked loss of striation. There was not any appearance of secondary fatty change in the connective neoplasm, which may possibly be accounted for by the teasing process. The specimen from the lumbar region was not, apparently, from the muscle, but was simply adipose tissue.

The reactions to the faradic current in the deltoid and calf muscles are very feeble. The reactions with sponges on the median and ulnar nerves of the forearm—the muscles of which are wasting—are about normal, or, at least, much more active than in the hypertrophied muscles. So, too, in the peronei. The reactions of degeneration to the galvanic current have not as yet been sought for.

The girl was weighed some months after her admission to the Home and after she had evidently lost much flesh, and turned the scale at one hundred and twenty-four pounds. When first admitted, it required the combined strength of two men to carry her up-stairs, and she, no doubt, at that time weighed considerably more. Her stature is not tall, and her age at that time was not seventeen. The measurements of her limbs are at present as follows:

Upper extremities.—Right arm, 12½; forearm, 9. Left arm, 13; forearm, 9.

Lower extremities.—Right thigh, 21; leg, 13½. Left thigh, 21½; leg, 13.

These figures show an increase of bulk during the last few months. The girl's mind is fairly bright. She is something of a giggler,

—simpering and foolish,—but her defects may be partly, at least, accounted for by lack of opportunity and education. She cannot be called a feeble-minded child. The patient's history is very obscure. Her mother "ran away with another man," as her brother explains in a letter, and she has passed her life in public institutions. This brother says he thinks she was always a cripple, but not so bad but that she could at one time walk. Her general health is excellent; she attempts to add constantly to her exuberant proportions with a vigorous appetite, and is now putting on fat. The heart and lungs are normal. She occasionally suffers pain from the spinal curvature, to which reference will be made in a moment. There is no evidence of heredity. She at one time menstruated very freely, and as often as every two weeks.

But, while the appearance of the muscles is so significant, there are changes in the bones of still greater interest, to which I desire to call your attention. These changes have occurred in the spine, and in the elbow- and knee-joints. The spine is in a state of constant scoliosis, with its greater convexity to the right. One year ago, this convexity could be thrown to the left by one attendant lifting the patient by the shoulders and another making pressure on the vertebrae. It would not remain thus, however, and was evidently uncomfortable to the girl.

The elbow-joint presents a unique appearance, which, so far as I am at present informed, has not been described in any other reported case of pseudo-hypertrophic muscular paralysis. It is exceedingly mobile, due apparently to an atrophy of the epiphyses of the bones. Thus, the joint can be bent backward at a marked angle, quite impossible when the olecranon and its opposing surface are intact. The attachments of the head of the radius and the upper end of the ulna are loosened, allowing a sort of wobbling and limberness in making pronation and supination. This preternatural mobility is increased by a somewhat similar condition of the head of the humerus in the glenoid cavity.

The wrist-joint, also, is not firm and stanch (depicted by Dr. Taylor). The chief defect of the knee-joints is an atrophy of the patellæ, which are not more than one-half their normal diameters.

In bringing this case to your notice I desire especially to call your attention to the fatty phenomena and to the bone-lesions. The literature of the subject presents nothing which has added much to the original description of Duchenne, supplemented by a few very thorough post-mortems,—especially of Eulenberg and Cohnheim. Duchenne said that the interstitial connective tissue proliferated with the production of fibrous tissue, and that this increase was associated with fat-vesicles; also, that the striation was preserved, but was very faint. He does not

ERGOT.—Of the physiological properties or therapeutical applications of ergot it has long been unnecessary further to speak. No drug has been more systematically studied by chemist or physiologist, and there is none whose exact place has been more definitely fixed in the medical practitioner's *materia medica*. Until within very recent date the pharmacy of the drug was, however, strangely neglected. Ergot is peculiarly a drug whose medicinal activity is affected by conditions of climate, soil, season of gathering, and the various contingencies liable to interfere with the successful gathering, drying, etc., of the crude material. It is well known that the chemical constituents on which its virtue depends are liable to extreme variations with the conditions indicated. Notwithstanding this fact, however, the pharmacist continued to manufacture the usual Galenical preparations after the usual formulæ. The consequence was that the activity of these preparations was liable to variation from year to year, and few practitioners but have been disappointed in results confidently looked for, through this cause. With a view to remedying this great evil, especially great through the liability of the failure of the preparation at times when the life of a patient depends on its prompt action, we several years ago succeeded, after the necessary scientific experimentation, in giving to the profession a constant preparation, under the name of *Liquor Ergotæ Purificatus*. This preparation was made to conform at all times to a fixed standard, and contained an unvarying percentage of those chemical principles on which physiological study has demonstrated the oxytocic properties of the drug to depend. The drug is also known to contain certain principles of a more or less poisonous nature. These were carefully eliminated from the finished preparation. The success of this venture at a preparation of ergot which should be scientifically correct, encouraged us to make similar preparations of vegetable drugs, to which we, for convenience, gave the generic name of "Normal Liquids," and the name of our *Liquor Ergotæ Purificatus* was made to conform to this nomenclature. We, therefore, now place it on the market as

NORMAL LIQUID ERGOT, and would request that physicians, in prescribing it, do specify it by this name. It is as constant in its strength as quinine, morphine, or any other alkaloidal drug. We can confidently recommend its employment.

Our list contains, also, the Fluid Extract, the Solid Extract, the Powdered Extract, Ergotin (Bonjean's), Ergotin (purified), and Solution of Sclerotic Acid. We have space only to call attention to our

ERGOTIN (PURIFIED).—This preparation represents in concentrated form the activity of the drug, freed from inert and other positively irritating constituents. We believe it to be greatly superior to any other preparation in the market for hypodermic use. Its concentrated form adapts it to the pocket-case, where it may be thus constantly at hand in case of emergency.

For literature fully descriptive of the above, address

PARKE, DAVIS & CO.

BOUDAULT'S PEPSINE

THE ONLY PEPSINE USED IN THE HOSPITALS OF PARIS FOR THE LAST 30 YEARS.

Unlike the various substitutes which, in most cases, are but unscientific or incompatible compounds, forced upon the medical profession as aids to digestion by extensive advertising, but which, when submitted to the proper tests, are found to be useless as digestive agents, Pepsine is constantly gaining in the esteem of the careful practitioner.

Since the introduction of Pepsine by Boudault and Corvisart in 1854, the original BOUDAULT'S PEPSINE HAS BEEN AT ALL TIMES CONSIDERED THE BEST, as is attested by the awards it has received at the Expositions of 1867, 1868, 1872, 1873, in 1876 at the Centennial Exposition of Philadelphia, and in 1878 at the Paris Exposition.

The most reliable tests, carefully applied, will satisfy every one that BOUDAULT'S PEPSINE HAS A MUCH HIGHER DIGESTIVE POWER than the best Pepsines now before the profession, and is therefore especially worthy of their attention.

BOUDAULT'S PEPSINE is prepared in the form of Pepsine Acid and Pepsine Neutral. It is sold in bottles of one ounce, with a measure containing exactly five grains; also in bottles of 4, 8, and 16 ounces for dispensing.

BOUDAULT'S WINE OF PEPSINE.

Formula of Dr. Corvisart.

The taste of Pepsine being perfectly disguised in this Wine, it may be recommended to persons who have difficulty in taking Pepsine in the form of powder. This Wine is tested so that a tablespoonful of it is equal in digestive power to ten grains of Boudault's Pepsine in powder. Sold only in bottles of 8 ounces.

AGENTS FOR THE UNITED STATES,

E. FOUGERA & CO., New York.

TANRET'S PELLETERINE.

FOR THE TREATMENT OF TAPE-WORM (TÆNIA SOLIUM).

This New Tæniifuge, the Active Alkaloid of Pomegranate Bark, has of late come into extensive use in France for the treatment of Tape-Worm (Tænia Solium). The results of numerous experiments with it at the Marine Hospitals of Toulon, St. Mandrier, etc., and in the Hospitals of Paris, St. Antoine, La Charité, Necker, Beaujon, etc., have all been most satisfactory. Dr. Dujardin-Beaumez, Member of the Academy of Medicine, and Prof. Laboulbène, in their report to the Society of Therapeutics, have given it their unqualified approval after the most searching experiments. This preparation is pleasant to administer, and if certain preliminaries are observed success will be insured. Sold only in bottles containing one dose.

TANRET'S ERGOTININE.

ALKALOID AND ACTIVE PRINCIPLE OF SPURRED RYE.

This is a well-defined alkaloid that must not be confounded with Ergotine or other extracts. It is given in doses of from $\frac{1}{4}$ to $\frac{1}{2}$ milligramme (1-240th to 1-120th of a grain) in all cases where Ergot is indicated, viz., Flooding, Post-Partum Hemorrhages, Metrorrhagia, etc., etc. It is put up in the following forms:

Syrup, containing $\frac{1}{4}$ milligramme to each teaspoonful: Dose, from 1 to 6 teaspoonfuls per day.

Solution, for hypodermic purposes, containing 1 milligramme to each cubic centimetre; Dose, from 3 to 10 drops.

The Institute of France has awarded one of its prizes to Mr. Chas. Tanret for the discovery of these alkaloids.

Tanret's Pelletierine and Ergotinine are only prepared by Mr. Chas. Tanret, Laureate of the Institute of France, 64 Rue du Rempart, Paris.

SOLE AGENTS FOR THE UNITED STATES,

E. FOUGERA & CO., 30 North William Street, New York.

PAMPHLET ON PELLETERINE AND ERGOTININE SENT ON APPLICATION.

DR. RABUTEAU'S

(Laureate of the Institute of France)

DRAGÉES, ELIXIR, AND SYRUP OF IRON.

"The experiments made in the hospitals of Paris have demonstrated that Dr. Rabuteau's *Dragées*, *Elixir*, and *Syrup* regenerate the red globules of the blood with a rapidity never observed with the use of the other ferruginous preparations. These results have been proved by the various *Compte-Globules*.

"The ferruginous preparations of Dr. Rabuteau do not cause any constipation, and are perfectly tolerated by the weakest persons."—*Gazette des Hôpitaux*.

Dr. Rabuteau's *Elixir* is prescribed when some difficulty is experienced in swallowing the *Dragées*; it is especially adapted to weak persons whose digestive functions need strengthening or stimulating.

Dr. Rabuteau's *Syrup* is especially prepared for children, who take it readily because of its agreeable taste.

A sample of Rabuteau's *Dragées* will be sent free to any physician mentioning THE PHILADELPHIA MEDICAL TIMES.

Prepared by CLIN & CO., Pharmacists, Paris.

E. FOUGERA & CO., Agents for the United States.

bring into prominence the fatty changes, which seem to be secondary to the hypertrophy of the connective tissue. Other writers, apparently following Duchenne, or perhaps not seeing cases in which fatty changes are prominent (for they are rarely as marked as in our case), have not discoursed much upon the phenomena of lipomatosis. Duchenne says "the subcutaneous tissue contains very little fat." Eulenberg, however, has brought these changes prominently forward, for in his monograph—founded upon his post-mortem researches—he says there is a great increase of subcutaneous fatty tissue, "most noticeable in places where nature has provided an abundant panniculus;" and, moreover, says of the intermuscular changes, that there is first a proliferation of connective tissue, which is transformed into fatty tissue. I think that our case is a striking example of this pathology.

The bone-lesions in this case are interesting in view of the tendency at present to connect bone- and joint-changes with diseases of the central nervous system. This speculation is not a new one, for it was a suggestion of Prof. J. K. Mitchell years ago—so he is quoted—that rheumatism may be of neurotic origin. Arthritis deformans has been recently attributed by Weber to a neurotic source, but the argument is largely from a therapeutic stand-point,—viz., as the disease does not improve on anti-rheumatic treatment, and does improve on general tonic and galvanic treatment, *ergo*, a neurotic origin. There are undoubted bone-lesions caused by disorders of the cerebro-spinal axis, as has been shown by Prof. H. C. Wood in a recent clinical lecture. He refers to bone-changes in insanity (especially dementia paralytica), in hemiplegia, and in locomotor ataxia. These changes are described as atrophy, hypertrophy, and inflammation. A true causative relation is shown, but we are wanting in an exact pathology as to what trophic centres, if any, are affected, and in what manner. Bone-lesions in pseudo-hypertrophic muscular paralysis have not been brought into any prominence in the investigations which I have consulted, and in many cases not even referred to. Scoliosis, which exists in one case, is mentioned by some and ascribed to the weakened state of the muscles,—no doubt a true explanation, but such changes as I have described in the elbow and knee appear to be unique.

As a possible explanation of these impaired bones, I am reminded of the dictum of Duchenne. It was not the belief of this great clinician that pseudo-hypertrophic muscular paralysis was at all identical with progressive muscular atrophy, or that it was of central origin. It seems probable that the case before us may be an expression of that faulty development which overtakes in some defective births all tissues, and that pseudo-hypertrophic muscular paralysis, associated as it often is with impaired brain- and nerve-func-

tion, may be but a form, in some cases at least, of congenital deficiency of developmental power.

Dr. CHARLES K. MILLS said that he had that day seen a case at the Philadelphia Polyclinic interesting in connection with Dr. Lloyd's remarks on bone- and joint-lesion originating from the nervous system. The case was that of a mulatto woman who is changing to a bronze color, and, in addition, the upper half of the body is affected with muscular atrophy. The joints, particularly the smaller ones of the right hand, are swollen, rigid, and painful; the hands were in a half-closed position. She had perverted sensation in her face, loss of the sense of taste, difficulty of swallowing, and could only open her mouth half-way, on account of the muscles of deglutition and mastication being affected. The case illustrated the connection between muscular degeneration and joint and other trophic affections.

Dr. N. A. RANDOLPH read

A NOTE ON THE BEHAVIOR OF HYDROBROMIC ACID AND OF POTASSIUM IODIDE IN THE DIGESTIVE TRACT.

I venture to present before the Society a brief note upon a subject not strictly neurological, but having direct bearing upon the relations entertained to the processes of digestion by two drugs which are of interest to the neurologist.

In a series of artificial digestions in which hydrobromic acid was present in the digestive mixture in amount corresponding to the therapeutic dose, I have noted:

(a) That salivary digestion was completely suspended; whereas,

(b) The peptonization of proteid food-stuffs was in no wise retarded, the variation from the normal, if any, being towards an acceleration of this process.

It is evident, therefore, that, other things being equal, the appropriate time for the exhibition of this drug is immediately upon the cessation of salivary digestion within the stomach, or, in other words, upon the first formation of free acid within that viscus.

Recent studies* have shown that the acidity of the gastric contents found even in quite early stages of digestion is not due to the presence of free acid; and the ingenious observations of Von den Velden† go far towards proving that the development of free acid within the stomach does not occur until from forty-five minutes to an hour after breakfast, and from one to two hours after dinner. These results were obtained chiefly by the use of methylanilin violet and tropeolin, bodies delicately responsive by color-change to the presence of free acid. There is little doubt in

* Deutsch. Archiv f. Klin. Med., xxiii. 369. See also Jahresbuch u. d. Fortsch. d. Thier-Chemie, 1880, p. 302, and Danilewsky, Centralbl. f. d. Med. Wiss., 1880.

† Zeitschr. f. Physiol. Chemie, iii. 205.

my mind that hydrochloric acid is developed in the stomach at an earlier period than that above indicated, but it seems very probable that by immediate combination with albuminoid it loses somewhat its characteristic activity. This is illustrated by an observation made in the course of this study,—namely, that the addition of small amounts of potassium iodide to dilute solutions of acid albumen containing two-tenths of one per cent. of hydrochloric acid does not result in the liberation of iodine. The addition of the same amount of the iodide to the same quantity of an aqueous solution of hydrochloric acid of the same degree of activity results in an immediate liberation of iodine.

This interesting discovery of two stages of acidity in the gastric juice has, I believe, not yet been incorporated in the text-books. It serves to reconcile the contradictory opinions so frequently found as to the value to the economy of saliva as a digestive fluid, and explains the completely diverse results obtained by such careful workers as Frerichs* and Bidder and Schmidt.†

Besides an observance of the time-limitations just indicated, I would suggest the advisability of milk as a vehicle for the administration of hydrobromic acid. The curd thus formed is fine and flocculent, the mixture closely resembling buttermilk in taste and appearance, and in no wise suggesting medicine. I have taken as much as a tablespoonful of the dilute acid in a tumbler of milk without any repugnance. The milk used must be raw. With this, as with most other acids, boiled milk gives tough and bulky coagula.‡

As regards the exhibition of the iodide of potassium, the rationale of its time relations is altogether different. Although this drug is distinctly alkaline, its presence in a mixture of hydrated starch and saliva certainly does not suspend the action of the amylolytic ferment, nor, so far as I can determine, materially retard it.§ When, however, the iodide is added, even in very small amount, to a mixture of artificial gastric juice and egg-albumen or fibrin, the rapidity of peptonization, as determined by the nascent mercuric iodide reaction || or by the biuret reaction and control test, is greatly diminished. This result is not due to a slight diminution in the acidity of the solution, caused by the addition of an alkaline body, for the same effect is noted when the acidity of the solution is at once again brought up to the normal

degree. The pepsin is apparently but little, if at all, affected by the presence of the iodide, if we may judge by the indifference of ptyalin to the drug, and by the fact that quantities of the iodide corresponding to the maximal therapeutic dose neither entirely suspend the peptic activity nor induce greater retardation of the digestion than do much smaller quantities. A slight effect is exerted by the iodide upon the proteid food-stuffs, evidenced in an increased toughness produced in, e.g., fibrin, and, when the drug is abundantly present, in the acquisition by the albuminoid of a slight yellow tinge, due to staining by iodine, which is liberated by the free acid of the artificial gastric juice.

The most important factor in the delay of peptonization lies in the power possessed by potassium iodide, even in relatively minute quantity, of precipitating acid albumen in solutions which shall, after its addition, possess the normal degree of acidity of human or even canine gastric juice. The same may be said of potassium bromide and of several other analogous compounds. The precipitation effected by the iodide is so complete that when solutions of acid albumen are thus treated and filtered, the still acid filtrate yields no trace of proteid matter. This observation, which is doubtless old, though I have as yet been unable to find it recorded, tends to show that the time at which the administration of this drug is least liable to disturb digestion is either during or immediately after the ingestion of food.

There are several sources of error in attempts at deduction from the results of artificial digestion, as ordinarily performed. Thus, the continued activity of a digestive fluid is largely conditioned by the removal of the products of its action soon after their formation. This occurs in the living viscus, but not in the test-tube of the experimenter. The maintenance of the normal temperature of the active stomach is, of course, readily accomplished, but the conscientious imitation of other factors in the normal digestive process implies not only a constant mechanical intermingling of food-stuff and digestive fluid, but the continued addition of small amounts of the digestive fluid itself. I have nearly perfected an apparatus which in a large degree obviates the difficulties just cited.

In artificial salivary digestions are conducted in a thin tube of fish-bladder closed at one end, which is by mechanical means kept in gentle agitation. The contents of this tube are maintained at the proper temperature by a surrounding body of warm water, which is slowly but constantly changed. For gastric digestions the animal membrane is substituted by one offering equally great surface for dialysis, but resistant to peptic action. Despite, however, the inaccuracies attending existing methods of study, the follow-

* Wagner, Handwörterbuch der Physiologie, iii. a, 772.

† Bidder and Schmidt, Verdauung und Stoffwechsel, p. 27.

‡ Randolph: Verbal communication on differences between raw and boiled milk.—*Proc. Acad. Nat. Sci. of Phila.*, 1884.

§ Langley and Eves (*Journal of Physiology*, iv. p. 19) have shown that, although a distinctly alkaline medium retards salivary action, the presence of a proteid body in the digestive mixture will prevent this retardation.

|| Randolph: A Reaction common to Peptone and Bile Salts.—*Proc. Acad. Nat. Sci. of Phila.*, 1884.

ing deductions from the facts, old and new, which are here presented, appear justifiable.

I. That the earliest production of free acid within the stomach is approximately three-fourths of an hour after a meal, its appearance being still further delayed by the ingestion of food in large quantity.

II. That hydrobromic acid is liable to impede the digestion of starchy foods when administered within the interval just named; and

III. That iodide of potassium should be given at such time and in such dilution that its absorption shall be complete before the appearance of free acid within the gastric contents.

Dr. FRANCIS DERCUM said he thought the suggestion of using milk as a vehicle for hydrobromic acid a very good one.

Dr. S. WEIR MITCHELL spoke of the utility of hydrobromic acid given with bromide of potassium.

Dr. E. T. REICHERT referred to the paper recently written by Dr. H. C. Wood, on the "Use of Hydrobromic Acid in Epilepsy." He said it confirmed the conclusions which he had come to in a paper on "The Physiological Action of Hydrobromic Acid," published some years ago. He believed that hydrobromic acid could be substituted for bromide of potassium, as it had the same physiological qualities as the bromide.

Dr. S. WEIR MITCHELL read a paper on

CEDEMA OF HYSTERICAL HEMIPLEGIA AND UNILATERAL SWELLING IN HYSTERIA GENERALLY.

Dr. CHARLES K. MILLS said he had seen similar cases to those reported by Dr. Mitchell, but had not studied them closely. In a case of hystero-epilepsy, with hemi-anæsthesia, etc., there was cedema of both limbs, but the swelling was most marked on the affected side and was chiefly below the knee. In another case recently seen at the Philadelphia Hospital, the swelling of the limb was very decided.

In some cases of hysterical paraplegia he had noticed these swellings, but had not made them a special study. He also referred to a case of hysterical contracture of the wrist with marked cedema.

Dr. SINKLER spoke of having seen a number of cases of slight temporary swellings of the limbs in hysterical women. He mentioned a case of this kind which he had seen at the Orthopædic Hospital. It was that of a woman whose hands, feet, and legs would become, at times, slightly swollen, but it was temporary, as it would entirely disappear.

RECTAL ANÆSTHESIA.—It is hinted by the *Medical Bulletin* that the idea of producing anæsthesia by the rectum is not "fundamentally" correct.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

At a conversational meeting of the Society, held June 18, 1884, the President, Dr. WILLIAM M. WELCH, in the chair, a paper was read by Dr. William S. Janney, reporting a case of

AMPUTATION OF LEFT LEG AND THIRD, FOURTH, AND FIFTH METATARSALS OF RIGHT FOOT.

Mr. C., a colored man, æt. 41, was admitted to the Surgical Department of the Philadelphia Hospital, December 26, 1883. He was a driver for the Messrs. Bumm, salt-merchants, of this city. He was exposed to the intense cold of the third week of last December. A few days before his entrance to the hospital, he noticed that his feet were swollen; he cut his shoes, and continued to work until the 22d. On the 26th, both feet were swollen, the left the most, with the characteristic appearances of gangrene. In a few days sloughing commenced, and charcoal poultices were applied. On the 9th of January the line of demarcation on the left ankle was evident. On the 16th of January the line was deeply cut, and had begun to form on the right foot from the second interdigital web backward to the base of the fifth metatarsal. On the 16th, the left leg was amputated four inches above the ankle-joint, by a double tegumentary flap operation.

The stump was dressed with carbolized oil, and syringed out with carbolized water 1-40 daily. The patient's general condition was bad.

At the end of the fifth day the wound was dry, and gangrene had destroyed half the upper and nether flaps. The mortified portion was cut off with scissors, and the edges of the flaps were approximated with wire sutures and straps of rubber adhesive plaster, which the intentional redundancy of the flaps permitted, the wound healing without accident.

The tissues of the right foot continued to slough. On the 6th of February it presented the following appearance: the third, fourth, and fifth metatarsal bones and their phalanges were completely denuded, except the tendons of the extensor muscles, which remained attached to their respective insertions.

In consultation with my colleagues, it was thought that no operation short of Chopart's would be likely to succeed, as the remaining integument and underlying tissues covering the first and second metatarsals and their phalanges were infiltrated and boggy, indicating a very low vitality.

Mr. C. was very desirous of having as much of his foot saved as possible, and with his approval I disarticulated the third, fourth, and fifth metatarsals from the tarsal bones, leaving an open wound, which was dressed the first twenty-four hours with carbolized oil.

Gangrene speedily appeared in the wound; a poultice of tar, iodine, and flaxseed was crowded between the gaping edges; in three days the wound was clean and full of granulations; the wound was then dressed with a solution of bichloride of mercury, 1-1000; straps of adhesive plaster were applied, so that the edges were gradually approximated. At present the left stump has healed entirely, except a slight break, through which a necrosed portion of the bone was removed; the right foot has healed; the foot is in the condition of slight varus, but is very serviceable; the man's general condition is good.

The internal treatment was quinine, iron, and chlorine-water.

Dr. JOHN S. MILLER then read a paper on "Etherization by the Rectum." (See p. 792.)

DISCUSSION.

Dr. O'HARA: I do not think I would use this method. I see no advantage in it over administration by the mouth. It involves more risks. The ether has to go through the portal circulation and penetrate in that way through the entire system. A good deal of local irritation will be produced, and the method might be followed by congestion of the bowel. For operations above the mouth and throat it may possess advantages of convenience over the ordinary method, but a case of hare-lip operation has recently terminated fatally.

Dr. LEVIS: I have had no experience in this method, but I have watched the progress of it. The main objection is the irritating quality of ether. Other anæsthetic vapors are not so irritating, and it might be well to try the action of some of these.

Dr. NANCREDE said: Although I have had no experience in the rectal method of inducing anæsthesia, yet I fully recognize that the ordinary methods of administering ether are unsatisfactory, and therefore I welcome the paper of the evening as a step in the right direction,—i.e., the endeavor to discover some more satisfactory method of inducing anæsthesia. The rectal method, however, is infinitely less safe than by the mouth, one if not more deaths having been acknowledged in a few dozen cases,—probably less than twenty-five patients in all having been experimented on,—while about one death in twenty-three thousand is the mortality usually given for etherization by the air-passages. The rectal method evidently requires much more skill and special training than the ordinary method. Anæsthesia I always considered a dangerous state, and I think that the usual custom in our American hospitals of intrusting the administration of anæsthetics to the junior member of the house staff is a reprehensible practice. Instead of giving the anæsthetic into the hands of the least experienced resident, it should be intrusted only to the most experienced.

Dr. DAVIS: In etherizing there are two

things I am afraid of,—suffocation and collapse. The former is usually readily avoided by attention to the tongue and the use of a gag to open the jaws; the latter is more serious: it occurs most readily in strumous children. In the University clinic there are constantly being performed operations on just such cases,—resections and the like. In these strumous cases, particularly if the operation is a severe one, the depression is very marked. I have seen the temperature fall as low as 94°, recovery ensuing. If collapse threatens, the first thing to do is to withdraw the ether. If it is being administered by the mouth, this can readily be done, but not so if it is being given by the rectum. In one of the cases related by the author, anæsthesia continued for a time after the withdrawal of the anæsthetic; and this is just what is to be feared in this method of giving ether. If symptoms of collapse supervene, we cannot withdraw the ether from the bowel, and the anæsthesia must increase, with a possibly fatal result.

Dr. ALBERT H. SMITH: The cases offered by Dr. Miller are not sufficient to establish the advantage of this method. Perhaps in operations requiring but a few minutes the method may answer; but how about cases in which the administration must be kept up for an hour or more? Anæsthesia is always to be considered a dangerous condition, but there is no special danger in a short anæsthesia if the material used is pure and carefully used. I cannot see any advantage in the rectal method. There is a serious æsthetic objection to it. In operations about the mouth it may be convenient, but here we can use other anæsthetics. I do not think that there is any difference in the action of the ether in the two methods. The ether must always act through the nerve-centres. The difficulties of dyspnoea and irritation may be all avoided by the use of morphia hypodermically before the operation. In reference to the relative danger of ether and chloroform I may say that I have seen much more alarming symptoms from the former than from the latter. I have abstained from using chloroform in many cases, not because I thought it unsafe, but because I knew that if death occurred under its use the anæsthetic would be made to bear the blame, while if ether were used it would not be charged with the accident.

Dr. W. R. D. BLACKWOOD: To my mind the method is useless and objectionable. The mortality directly attributable to its employment is enough to prohibit the practice. I have no experience in the human subject yet, and would not have hereafter. I was asked to notice the subject in a medical journal, and made two experiments in order to learn something of the method. In one case the animal's abdomen was enormously distended, and the vapor could not be removed by simply affording free exit by a tube per anum, or by

auxiliary external pressure; the vapor undoubtedly got beyond the ileo-cæcal valve, and was retained. We know nothing about the ability of the rectum to absorb gases; that is not its function. We cannot control retained vapor in the bowel. The procedure is dirty, offensive to all, and unjustifiable. Like all new things, too many in the profession will run wild over this plan for a while, and then drop it for the last novelty, without regard for its utility or real worth.

Dr. MILLER, in closing the discussion, said: The design of this paper, which I had supposed obvious, is the contribution of certain data to the subject of rectal etherization, and a formulation of the more obvious advantages and disadvantages. The attempt to strike a balance of the same I deem as yet premature. The mechanical dangers of overdistention, the difficulty of emptying the bowel of vapor when a suspension of the anæsthesia is desired, and the greater caution needed in the administration,—all these points I had already mentioned in my paper,

There are only two points to which I would further allude,—viz.:

First, as to rate of elimination. This, taking place by the lungs, no matter how introduced, would be more rapid than when the agent is inhaled, inasmuch as by the new method the pulmonary mucous membrane is preserved intact, and therefore more capable of osmotic function than if bathed in mucus, as by the ordinary way.

A more serious objection has not yet been referred to,—one based upon theoretical considerations. The experiments of Paul Bert—now already classic—have demonstrated:

1. That the degree of anæsthesia depends not upon the absolute amount of the agent used, but upon the percentage in the blood, and therefore on the tension of the vapor in the *atmosphere inhaled*.

2. That the percentage needed to suspend respectively the functions of animal and organic life bear a definite ratio to each other,—a ratio constant for each of the known anæsthetic agents, and for each species of animal and for each human individual. All between the two percentages mentioned is termed the *manageable zone*.

3. That most, if not all, of the undesirable effects of an anæsthetic are due to leaving this zone.

4. That the greatest safety is therefore in mixing the gases beforehand,—as has long been done by Mr. Spencer Wells.

If, now, ether be given by the rectum, it will be readily seen that the gauging can only be by absolute quantity, and not by the percentage actually in the blood. We could never know how near this zone is to being exhausted. To my mind, this is the most serious objection that can be offered.

HENRY LEFFMANN, M.D.,
Reporting Secretary.

PHILADELPHIA CLINICAL SOCIETY.

A STATED meeting of the Society was held June 27, 1884, the President, Dr. HENRY BEATES, JR., in the chair.

Dr. G. BETTON MASSEY read a paper on "Traumatic Sciatica and its Relation to Hip-Injuries." (See p. 795.)

DISCUSSION.

Dr. E. E. MONTGOMERY inquired how many cells had been used in the treatment. He thought that, considering the usual obstinacy of the class to which the cases related belonged, due to the inflammation of the sheath of the nerve, the treatment had been satisfactory.

Dr. L. BREWER HALL related the details of a case similar to those described, which had been caused in a lady by a fall from horseback, alighting on the seat. The pelvis was fractured, and a long-continued sciatica supervened.

Dr. MASSEY, in closing the discussion, said that the number of cells used varied from twenty or thirty to fifty, the kind being the gravity-cell, which, owing to great internal resistance and the nature of the elements used, did not furnish as much current per cell as the zinc-and-carbon batteries charged with acid. The number used was largely regulated by the varying resistance of the skins of different individuals, some skins permitting a free flow of the current, while others presented an almost insurmountable obstacle. It is to be regretted that the inventors have not as yet presented us with an instrument that will conveniently inform the operator of the true amount of electricity passing at a given moment. An approximation, however, to accurate dosage may be made by including a galvanometer in the circuit, or even by observing the sensations of the patient. Since the date of these cases he had used the static form of electricity in many cases of ordinary sciatica, and found it at times quite as efficacious as galvanism, as well as more convenient.

TREATMENT OF FISSURED NIPPLES.

Dr. DU BOIS called attention to the value of balsam of Peru as an application for fissured nipples. It should be applied after nursing about four times daily.

A COMBINED CLINICAL AND TABLE MICROSCOPE.

Dr. HALL, on behalf of the Committee on Microscopy, presented an improved clinical microscope, which combined all the features of a clinical with those of an ordinary table-stand.

KOCH DECORATED.—From the daily papers we learn that Dr. Koch has been decorated by the French government for his studies in the causation of cholera.

REVIEWS AND BOOK NOTICES.

RECHERCHES CLINIQUES ET THÉRAPEUTIQUES SUR L'ÉPILEPSIE, L'HYSTÉRIE ET L'IDIOTIE. *Compte-Rendu du Service des Epileptiques et des Enfants idiots et arriérés de Bicêtre pendant l'Année 1882.* Par Bourneville, Médecin de Bicêtre, Dauge, Interne du Service, et P. Bricon, Docteur en Médecine. Paris, 1883.

A year or so ago we took occasion to speak in terms of well-merited praise of the yearly volume printed by the physicians of the Bicêtre as an annual report, a volume not financial or laudatory either of a board of managers or of a supervising Providence, like many of our annual asylum reports, but containing the record of good, downright, scientific work, besides giving an idea of the clinical scope of the year's labor in the wards.

The present number seems in no whit behind its predecessor, but we notice a change in the method of treatment at the Bicêtre in the great growth of hydro-therapeutics, over thirty thousand baths of various kinds having been administered during the year. About eighty pages of the brochure are occupied with a detailed discussion (chiefly reports of cases) of the water-treatment of epilepsy. In twenty-six of the fifty-two cases reported, the baths appeared to do good; in six cases the amelioration was very noticeable. The expensiveness, trouble, and slight utility of the method will, in our opinion, prevent its ever becoming a popular remedy in epilepsy.

A trial as to the value of the bromide of gold showed that in doses of ten centigrammes a day it had no appreciable physiological or therapeutic effect; nor was any better result arrived at in a prolonged study of the effects of magnets upon epilepsy.

A number of cases of various kinds are reported in the volume, much the most interesting being the account of two cases in which paraplegia developed during the protracted inhalation of bromide of ethyl for the relief of epileptic convulsions. The drug was apparently the cause of the paraplegia, from which the patients very slowly recovered.

THE MEDICAL DIRECTORY OF PHILADELPHIA FOR 1884. Edited by SAMUEL B. HOPPIN, M.D. Philadelphia, P. Blakiston, Son & Co., 1884. 12mo, pp. 205.

This often-needed work of reference contains a considerable amount of useful information in a small compass. In addition to the names, office-hours, and residences of physicians, the place and date of graduation are given, and a supplementary list, arranged according to streets and numbers, is appended, which is sometimes a great convenience. Lists of homœopathic physicians (with a similar street-list), also of graduates of eclectic, Penn., and Payne's Colleges, and of per-

sons practising medicine without diplomas who have registered under the ten-year clause of the Registration Act, lists of druggists and of dentists, and of veterinary physicians and surgeons (both alphabetical and street), are to be found, together with much other useful information with reference to hospitals, dispensaries, public institutions, and special relief.

The text of the law governing registration, the law governing the coroner, and the Anatomy Act, are also included in this book, to which the editor has evidently devoted much time and care, and which he has made a most useful little work.

AUSCULTATION, PERCUSSION, AND URINALYSIS: AN EPITOME OF THE PHYSICAL SIGNS OF THE DISEASES OF THE HEART, LUNG, LIVER, AND KIDNEYS. Edited by C. HENRI LEONARD, M.A., M.D., Professor of the Medical and Surgical Diseases of Women, and Clinical Gynecology, Michigan College of Medicine. Illustrated. Cloth, 16mo, 166 pages, postpaid, \$1.00. Detroit, Michigan, 1884. The Illustrated Medical Journal Co., Publishers.

This little hand-book of physical diagnosis gives an acceptable outline of the physical signs of the diseases of the principal thoracic and abdominal organs, with brief references to histological and anatomical points, and details of examination, which will render it a very useful book of reference for the student. The chapter on urine-analysis is comprehensive, though brief. It was prepared expressly for the book by William H. Rouse, M.D., Ph.C. A chapter upon Bacteria, Bacilli, Micrococci, Vibriones, and Spirillum, with illustrations, completes the work, which appears to be concise, correct, and reliable, and will be appreciated by those who need it and who have not the time to consult the larger works.

MISCELLANY.

PROGRESS OF CREMATION.—There are a number of cremation societies in this country, but only one crematory, that at Washington, Pennsylvania, and the difficulty and expense of sending bodies to that place will prevent, for some time at least, any extensive adoption of this mode of disposing of the bodies of the dead. There is but little doubt, however, that the number of those who favor cremation instead of ordinary earth-burial is steadily increasing, and it will not be long before there will be other furnaces built. A few days since, a meeting was held in New York of those who favor cremation, and plans were suggested looking towards a popular subscription to secure money to build a crematory near New York. Boston and Philadelphia each have cremation societies, and before another year has elapsed will probably have crematories. The recent dis-

tinguished example of our own Professor Samuel D. Gross has certainly caused some to look with favor upon cremation who had been opposed to it hitherto.

The question is also becoming an important one in England, as there are many in that country who regard cremation as desirable both on sanitary and economical grounds.

The attitude of the courts on the subject becomes, therefore, of special interest, and we notice that an exhaustive opinion recently rendered by Mr. Justice Stephen, in a case before him, shows that cremation cannot be considered a misdemeanor under the common law of England.

The recorded cases, as Justice Stephen says, seem to declare expressly that every one is entitled to "Christian burial," and any other mode of disposing of the dead, according to a strict construction of the law, would appear to be illegal, but as cremation was not known in England at the time when these cases were decided, and as this mode was certainly not in the minds of the judges, he says that no special weight should be given to such words. Looking at the matter as a new question, and without prejudice, he decides, however, that cremation cannot be considered a misdemeanor until it is so declared to be by Parliament. He does not express an opinion as to the advisability or propriety of cremation.

He does, however, declare that any act of cremation under such circumstances as to make it obnoxious to the community or annoying would make the perpetrators liable to an indictment for a nuisance.

The case in question before him involved the points of cremation as a misdemeanor and the prevention of an inquest. In regard to the latter it will be readily seen that some complications might arise and justice be thwarted in criminal cases. In case of sudden death by poison, it would be impossible often to secure evidences of the crime, if cremation were allowable under all circumstances. Even where a certificate of death is required, this might be obtained by wrongful means and the body quickly burned, in which case justice might be absolutely defeated through the impossibility of obtaining such proof as the law demands in murder trials. It would also be possible for a person to disregard entirely the provision requiring a certificate of death and burn the body before the authorities knew of the death. In such a case he might make himself liable for a misdemeanor, but he would escape the greater danger of a trial for murder.

These considerations are important in determining what legislation, if any, is needful in the matter.

It must also be remembered that the authorities have no right to hold inquests in every case of death; it is only where there are suspicious circumstances attending the decease. Ordinarily a person might be said

to have the same right to cremation that he would have to ordinary burial.

In the English case just cited the person was tried on charges of being guilty of a misdemeanor in burning a dead body and preventing an inquest, but he was acquitted on each charge.

IMPORTANCE OF A PROPER DIET IN SUMMER-COMPLAINT.—In the summer diarrhoea of infants sometimes no good result can be obtained from the treatment until the diet is changed. In such cases, Mellin's Food, which is used and recommended by some of the best authorities on diseases of children, will be found to be nourishing, unirritating, and very acceptable to children.* Where milk diet is resumed, we have also used Lactopeptine, a combination of pepsin, pancreatin, ptyalin, and lactic and hydrochloric acids, which has proved a valuable aid in weak digestion, and often invaluable in the summer diarrhoea of infants.

THE PRESIDENT'S PROCLAMATION,—QUARANTINE OFFICERS AND THE PUBLIC WARNED TO VIGILANCE AGAINST THE CHOLERA.

WASHINGTON, July 19.

By the President of the United States of America:

A PROCLAMATION.—While quarantine regulations are committed to the several States, the General Government has reposed certain powers in the President to be used at his discretion in preventing a threatened epidemic.

Feeling it my duty, I hereby call upon all

* A recent analysis of Mellin's Food by Prof. Fresenius, of Wiesbaden, gave results as follows:

The preparation is a moderately fine, yellowish-white, hygroscopic powder. It is not completely soluble in water, but is almost completely so—with the exception of a trace—in the stomach. The constituents are as follows:

I. Soluble in water:	
Non-nitrogenized, organic.	
Maltose and dextrose (33.46+35.92).....	69.38
Nitrogenized, organic.	
Albumen (2.13), peptone (0.87), amides (1.69)....	4.69
Inorganic	4.23
	78.30
II. Insoluble in water, but almost completely dissolved in the stomach:	
Non-nitrogenized, organic.	
Fat (0.08), cellulose, etc. (3.10).....	3.18
Nitrogenized, organic.....	5.06
Inorganic	0.14
	8.38
III. Water, including loss by drying at 120° C... ..	13.32
	100.00

As a matter of analytical interest, it may be added that the albuminoids were determined by Prof. Fresenius in the following manner: The albumen is calculated from the nitrogen of those nitrogenized substances which are precipitable by cupric hydrate in a solution containing a slight excess of acetic acid. The calculation is made by multiplying the nitrogen with 6.25. The peptones are found in a similar manner by calculation from the nitrogen obtained from the precipitate produced by phosphomolybdate of sodium in the filtrate from the preceding operation, after acidulating with hydrochloric acid. The amides result from the difference of the sum of nitrogen of the protein bodies, peptone and that obtained from the nitrogenized substances insoluble in water on the one hand, and the total nitrogen on the other hand. Of the 9.75 per cent. of nitrogenized constituents, only 0.2 per cent. were found to be insoluble.—*American Druggist.*

persons who, under existing systems in the several States, are intrusted with the execution of quarantine regulations, to be diligent and on the alert in order to prevent the introduction of the pestilence, which, we regret to learn, has made its appearance in some of the countries of Europe between which and the ports of the United States intercourse is direct and frequent.

I further advise that the cities and towns of the United States, whether on the coast or on the lines of interior communication, by sound sanitary regulations and the promotion of cleanliness, be prepared to resist the power of the disease and to mitigate its severity.

And I further direct the consuls of the United States in the ports where the pestilence has made or may make its appearance to exercise vigilance in carrying out the instructions heretofore given, and in communicating to the government of the United States any information of value relating to the progress or treatment of the disease. Given under my hand and the seal of the United States, at the city of Washington, this nineteenth day of July, in the year of our Lord one thousand eight hundred and eighty-four, and of the Independence of the United States the one hundred and eighth.

(Signed) CHESTER A. ARTHUR.

[SEAL]

By the President,

FREDERICK T. FRELINGHUYSEN,
Secretary of State.

THE Fifty-Seventh Congress of German Naturalists and Physicians will be held this year at Magdeburg, from the 18th to the 23d of September. The programme has been published by the committee, Drs. Gähde and Hochheim. Of the twenty-four sections into which the Congress will be divided, we observe that those upon medicine are particularly full as to promised communications. The official invitation and programme, containing extended details of the proceedings both in the Sections and in the general sessions, will be sent to any physician who has not yet received one, if he will send a postal card communicating the fact, addressing it to the Naturforscher Versammlung, Magdeburg, Germany.

NOTES AND QUERIES.

THE BERLIN POLICLINIC.

In a communication which has just been received by us, signed by Dr. Ludwig Loewe, of the Berlin Polyclinic, some items are contained which will interest those who expect to visit Europe and improve part of their time by study.

In all the special courses of the Berlin Polyclinic with practical clinical instruction the classes will be limited to six participants. Where there are more than six applicants for such a course, there will be formed a parallel course. For those who wish more thorough instruction, opportunities are offered to serve as assistants. The object being to make the Berliner Polyclinic an institute of an international character, the privat-docenten will conduct courses in foreign languages, and places as assistants will be given to physicians of other

countries, the term of appointment being for three months. New courses begin with the first of each month, and continue daily, except Sunday, until the end of the month.

The new arrangements will give satisfaction, and will prove very convenient for those whose stay must be short and who wish to make the most of their time. After serving as assistants for a term, the foreign physicians, in especial cases, will be allowed to carry on parallel courses of their own.

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U. S. ARMY FROM JULY 6, 1884, TO JULY 19, 1884.

PROMOTIONS (to date from July 2, 1884):

GLOVER PERIN, to be Assistant Surgeon-General, with rank of Colonel.

ANDREW K. SMITH, to be Surgeon, with rank of Lieutenant-Colonel.

PASSMORE MIDDLETON, to be Surgeon, with rank of Major.

CLEMENTS, B. A., MAJOR AND SURGEON.—Also directed to relieve Surgeon J. P. Wright of his duties as Acting Medical Director Department of the Missouri. Paragraph 1, S. O. 138, Headquarters Department of Missouri, July 8, 1884.

WRIGHT, J. P., MAJOR AND SURGEON.—Assigned to duty as post surgeon, San Antonio, Texas. Paragraph 4, S. O. 87, Headquarters Department of Texas, July 14, 1884.

MCLEDERY, HENRY, CAPTAIN AND ASSISTANT-SURGEON.—From Department of the Platte to Department of the East. Paragraph 12, S. O. 165, A. G. O., July 16, 1884.

EWEN, CLARENCE, CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty as post surgeon, Fort Sidney, Nebraska. Paragraph 8, S. O. 58, Headquarters Department of Platte, July 11, 1884.

ELBREV, F. W., CAPTAIN AND ASSISTANT-SURGEON.—Leave of absence still further extended six months, on surgeon's certificate of disability. Paragraph 6, S. O. 161, A. G. O., July 12, 1884.

PROMOTIONS:

To be Assistant-Surgeons, with the rank of Captain, after five years' service, in accordance with the Act of Congress of June 23, 1874:

Assistant-Surgeon JOHN J. KANE, June 3, 1884.

Assistant-Surgeon JOHN M. BANISTER, June 3, 1884.

Assistant-Surgeon AARON H. APPEL, June 3, 1884.

Assistant-Surgeon CHARLES RICHARD, June 3, 1884.

Assistant-Surgeon W. FITZHUGH CARTER, June 3, 1884.

BIRMINGHAM, H. P., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—From Fort Bayard, New Mexico, to Fort Bliss, Texas. Paragraph 3, S. O. 137, Headquarters Department of Missouri, July 3, 1884.

WAKEMAN, WILLIAM J., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—Relieved from duty at Fort D. A. Russell, Wyoming, and assigned to duty as post surgeon, Fort Washakie, Wyoming, relieving Assistant-Surgeon Norton Strong. Paragraph 9, S. O. 58, Headquarters Department of Platte, July 11, 1884.

APPOINTMENT:

CHARLES B. EWING, to be Assistant-Surgeon, with the rank of First-Lieutenant, July 5, 1884, vice Middleton, promoted. Memo., A. G. O., July 14, 1884.

LIST OF CHANGES OF STATIONS OF NAVAL MEDICAL OFFICERS FROM JULY 6, 1884, TO JULY 19, 1884.

P. A. Surgeon G. P. LUMSDEN, ordered to U. S. steam-ship "Wyandotte."

P. A. Surgeon R. C. PERSONS, detached from "Wyandotte" and placed on waiting orders.

Medical Director A. L. GIBON, ordered as member of Board of Inspection.

P. A. Surgeon R. C. PERSONS, ordered to U. S. steam-ship "Saratoga."

P. A. Surgeon C. A. SEIGFRIED, detached from U. S. steam-ship "Saratoga," ordered to Naval Hospital, Brooklyn.

Assistant-Surgeon J. S. SAYRE, ordered to U. S. steam-ship "Independence."